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THOMAS S. WIEGAND,
CHARLES BULLOCK,

AND THE EDITOR.

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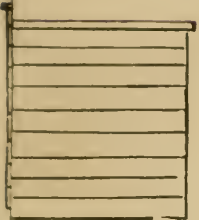
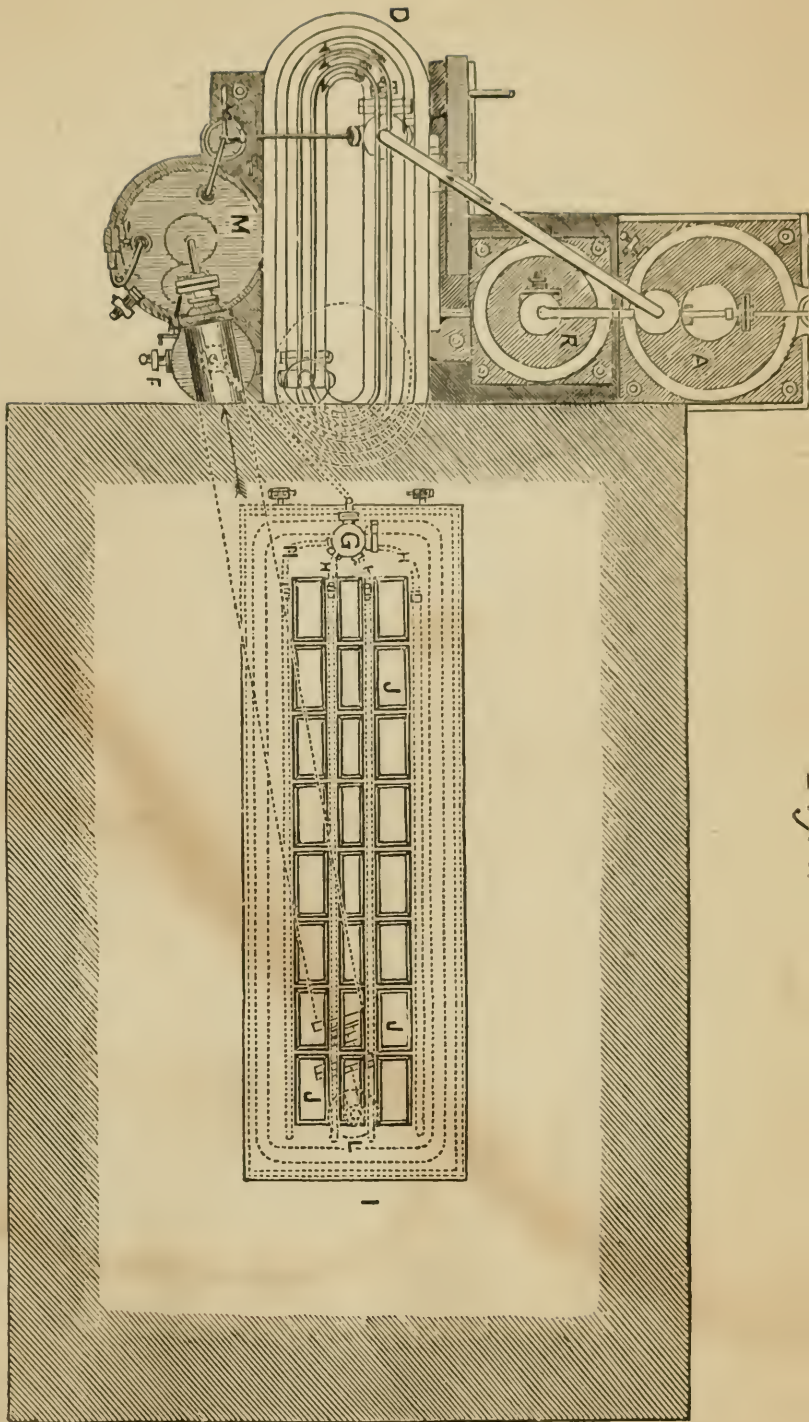


Fig. 1.

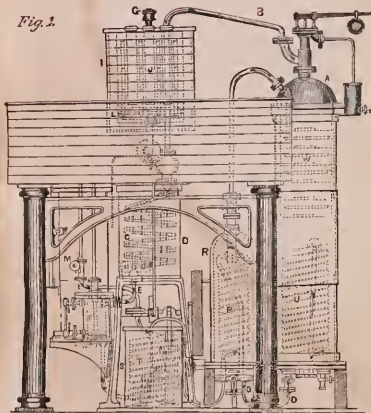
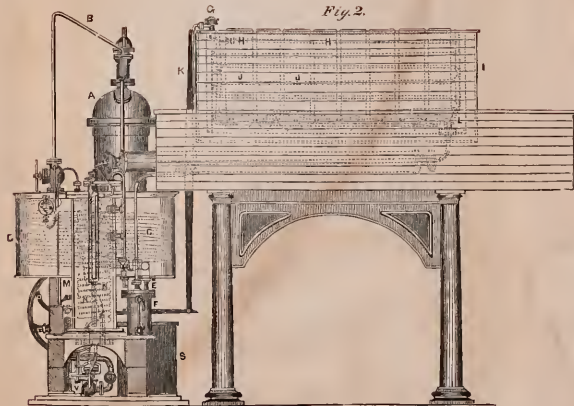


Fig. 2.



CARRÉ'S APPARATUS FOR MAKING ICE.

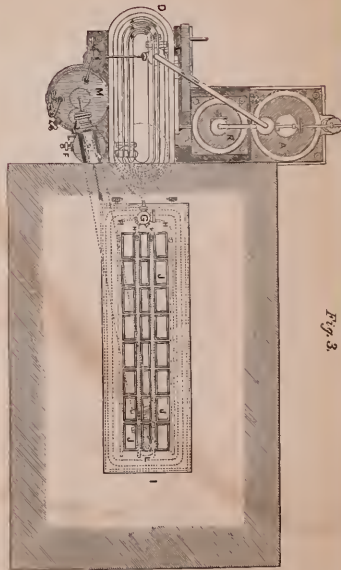


Fig. 3.

THE AMERICAN JOURNAL OF PHARMACY.

JANUARY, 1871.

CARRÉ'S APPARATUS FOR MAKING ICE.

BY THE EDITOR.

In the March number of this Journal for 1870, we gave an account of this machine without the ability to illustrate it by engravings. Since then Mr. Bujac has had drawings made and engraved, which enables us to recur to the subject so far as to present the engravings to our readers with a repetition of the description, rendered necessary by the absence of the letters of reference to the several parts in our former notice. By comparing the letters in figures 1 and 2 with those in the vertical view, fig. 3, the reader will readily get a correct idea of the relation of the parts of the apparatus. Fig. 1 is an end view, in section, the observer looking from the right hand end of the machine, as seen in fig. 2 toward the left, so as to see under the platform which supports the freezing cistern, and which is supported on four iron columns. The really scientific character of this machine, and the beautiful manner in which it illustrates the practical application of the laws of latent heat, is our excuse for again occupying space with it; besides, as it is quite possible to construct a miniature arrangement by which cold could be commanded at pleasure, some application of the principle may hereafter be made subservient to the uses of the pharmacist.

“Mr. Carré's invention consists in the use of ammoniacal gas, liquefied by pressure, as his agent for freezing water, which it does by abstracting and rendering latent the heat necessary to the liquid condition of the water. The manner of using the aqua ammoniæ to effect this purpose is exceedingly ingenious, and apparently paradoxical, inasmuch as ‘HEAT IS APPLIED TO PRODUCE COLD;’ ‘FIRE TO MAKE ICE;’ and this is one of the claims of originality made by the patentee, who also claims ‘THE APPLICATION OF THE POWER OF ABSORPTION DUE TO MUTUAL AFFINITY AS A MEANS OF PRODUCING VACUUM, VOLATILIZATION,

THE REMOVAL OF HEAT, AND THE CONSEQUENT PRODUCTION OF COLD.'” It may be premised that the form of ammonia used is the concentrated aqua ammoniæ, containing 26 per cent. of gaseous ammonia, and that there is a constant pressure in the apparatus, when in full operation, varying from 8 to 13 atmospheres, equal to about 120 to 200 lbs. to the square inch.

“The apparatus consists (1) of a cylindrical, dome-topped, vertical boiler, A, into which the aqua ammoniæ is introduced, part of which enters the *exchanger*, the *complément* and the *absorption vase*, to be described. A large tube B, issuing from the dome connects it with (2) the LIQUEFACTOR, C, (fig. 2) which is an extensive series of connected tubes, nearly horizontal, contained in a sheet-iron tank D, filled with cold running water. In this the gas, under the pressure and the cold, is liquefied, its latent heat being carried off by the cold water, whilst the liquefied ammoniacal gas passes out at the lowest end by a small tube E, into (3) the RECIPIENT, F, where it collects. This vessel is connected by a tube with (4) the DISTRIBUTING VALVE, G, through which the liquefied ammoniacal gas expands into four stacks of zig-zag tubes H, contained in the FREEZING CISTERN, I. The freezing cistern consists of a wooden tank lined with iron, in which are placed four lines of zigzag tubes, above noticed, into which the liquefied ammoniacal gas enters from the distributing valve. Between these tubes, twenty-four metallic cans, or freezers, filled with water are placed, and the whole interior of the tank is filled with a bath of strong brine, or, preferably, solution of chloride of calcium, which is incapable of being frozen by the temperature produced, and is made to circulate between the tubes and freezing cans, J, J, by a stirring apparatus, K. These stacks of zigzags connect at bottom with a cylindrical tube called the COLLECTOR, L. When now the distributing valve is partially opened, the liquefied ammoniacal gas is forced in due proportion into the zigzag tubes, where it rapidly expands into gas by the assumption of the heat necessary for its vaporization from the surrounding brine, which in its turn abstracts the heat from the water in the cans, (by virtue of which only it can retain its fluidity), and thus converts it into ice, and accomplishes the chief purpose of the machine. But the apparatus, acting continuously, now gathers the resulting ammoniacal gas, redissolves it in the weak aqua ammoniæ of the boiler which it has previously abstracted and cooled, and then returns it to the boiler to be again deprived of its gas. This remarkable compound result is effected in this wise: The ammoniacal gas, after performing its office of rendering latent the sensible heat of the water, passes on, first to the COLLECTOR, L, and from this through a tube, to the ABSORPTION VASE, M, (fig. 2, which consists of a cylindrical vessel enclosing a tall coil of tube, N, N, through which passes a constant current of cold water), and there, after the machine has been working some time, it meets with the exhausted aqua ammoniæ, by which it is rapidly absorbed, and which thus regains its original strength. The manner in which the weak aqua ammoniæ reaches the absorption vase M, and the regenerated aqua ammoniæ is returned to the boiler A, all of which has been effected under pressure varying from 8 to 13 atmospheres, is as follows: By a tube O, reaching from the bottom of the boiler, the latter is connected with the coil of the EXCHANGER, P, which con-

sists of a cylindrical iron vessel R, about 16 inches in diameter. The lower end of the exchanger coil P, is connected with the lower end of another coil in a similar vessel beside it, called the complement, S, (fig. 1) the upper end of which complement coil T, enters the absorption vase M (fig. 2), at the top, and descends nearly to the bottom.

"At first the boiler, exchanger, complement, and absorption vase, are charged with aqua ammoniæ, but as soon as the heat from the boiler coil U, (fig. 1) has driven off sufficient gas to create strong pressure, the weakened hot aqua ammoniæ is forced from the boiler A, into the coil of the exchanger P, where it is partially cooled by the cold aqua ammoniæ of the absorption vase M, which the pump V, (fig. 2) has forced into the cylinder of the exchanger P, ready to replace the weak aqua ammoniæ in the boiler A. The weak aqua ammoniæ is then perfectly cooled as it passes through the complement coil T, which is surrounded by cold water, and it (the weak aqua ammoniæ) enters the absorption vase M, rapidly absorbing the gas entering from the collector L, thus reproducing aqua ammoniæ. Simultaneously, the forcing pump V of the machine is drawing the cool strong aqua ammoniæ from the under stratum in the absorption vase M, and forcing it in the cylinder of the exchanger R, where, after performing its office of cooling the weak aqua ammoniæ and becoming itself heated, it passes into the boiler A, near its top, impinging on a series of porous diaphragms of metal W, (fig. 1) suspended in the upper part of the boiler A, to facilitate the rapid separation of the gas a second time. Thus it is apparent that the same aqua ammoniæ may be used over and over again.

"At starting the machine, all the cans J are filled with pure water, and closely covered with wooden lids, and when, after four hours, they are completely frozen, the operator removes the ice, which is effected by simply dipping the cans momentarily in hot water, and then inverting them. The cakes of ice are uniformly rectangular, and as their temperature when removed is far below 32° Fahr., by simply moistening their surface they freeze perfectly to each other, and form solid blocks of ice of any required dimensions."

The reader is referred to our article at page 102, March, 1870, from which the above is extracted, for some further remarks.

LIQUID PEPSIN AND SACCHARATED PEPSIN.

By E. SCHEFFFR.

In my essay upon Liquid Pepsin (*Am. Jour. Pharm.*, March, 1870) doubts were expressed about the durability of the preparation during warm weather. Subsequently, as the weather became warmer, I found that a mould was forming in the liquid, the quicker, the less perfectly the mucus was separated from it, and also when the bottle containing it was from time to time opened, so that the air could come in contact with it.

To satisfy myself I filtered a fresh prepared liquid repeatedly, un-

til it had become perfectly clear, filled several vials with it, corked them tight and sealed them, with the exception of one which was only covered with paper, and set them aside. When after about six weeks I looked after them, I found the vial only tied up with paper, almost entirely filled with a fucoid vegetation, and of the others some had mould on the cork, while a few kept entirely clear and free of mould.

Upon these results I thought it expedient to increase the quantity of glycerin in the preparation to 50 per cent., without changing the proportion of mucus membrane or muriatic acid. The resulting preparation stood the test better during summer, but in a few cases a little mould was also noticed on the cork, although never in the liquid itself. In all cases, however, care must be taken to have the mucus entirely removed from the Liquid Pepsin, and the sooner it can be and is removed, the better the product will be.

Finding it not as easy to get stomachs in summer as I anticipated, and particularly to get a preparation of Pepsin free of acid, as in some cases the physicians wish to have, I endeavored to make a dry Pepsin, which, while available for the dispensing in the form of powder, would serve for the preparation of the Liquid Pepsin.

Of the different formulas given in divers books treating upon organic and physiological chemistry, I found the one by which the Pepsin is precipitated by alcohol the least suitable, as the Pepsin obtained in this way had, after being dried, lost its solvent power on albumen.

After having precipitated the Pepsin and freed it of water as much as possible, by means of a press, it is mixed in the damp state with a weighed portion of sugar of milk, and rubbed in a mortar until it has become dry. By weighing the mixture again the quantity of exsiccated Pepsin is ascertained, and sufficient milk-sugar is added to reduce to such strength, that one grain of the *Saccharated Pepsin*, as I call it, shall dissolve twelve grains of coagulated albumen. This strength seemed to me the most suitable, as one grain is equal to one teaspoonful of my Liquid Pepsin, which dose is found by Physicians sufficient in most cases.

¶ The Pepsin dried without addition of an inert substance could not be dispensed, unless it be in solution, as in that state it cannot be made into powder. When taken out of the press and dried between bibulous paper it is a very tough substance, resembling parchment paper when dried in thin layers, while in thick pieces it looks more like sole leather; it has a yellowish or grayish brown color. In water

it swells up considerably and after some time disintegrates itself to white flakes, which float at first and then settle. Although easily soluble when freshly precipitated, it dissolves, after being dried, very little in cold water, more in water of 80 degrees, but very quickly by addition of a little acid. It is therefore necessary, when Saccharated Pepsin is prescribed in solution, to add a little acid, hydrochloric or lactic. To make Liquid Pepsin from the dry Saccharated Pepsin, I propose the following formula :

R	Sacch. Pepsin,	64 grains.
	Water,	5 fluid ounces.
	Hydrochloric acid,	1 fluid drachm.

Shake in a bottle until the milk-sugar and Pepsin are completely dissolved, then add glycerin 3 fluid ounces, and filter. A colorless liquid is formed, of which 1 fl. oz. dissolves $1\frac{1}{2}$ drachms of coagulated albumen.

As the normal gastric juice of man and animals contains chloride of sodium, I tried to ascertain if the addition of a little table salt to a solution of unmixed Pepsin in acidulated water would accelerate the solution of coagulated albumen; the result was that Pepsin with chloride of sodium dissolved albumen much quicker than without it. I therefore mention here that chloride of sodium is added to the Saccharated Pepsin.

As for the strength of Saccharated Pepsin, compared with the other dry Pepsins in use here, it was found that one part of it equalled about $3\frac{1}{2}$ parts of Boudault's, 8 to 9 parts of Grimault's, 12 parts of Hawley's and at least, 40 parts of Houghton's. During a period of from 3 to 4 hours, 10 grains of Saccharated Pepsin in a fluid ounce of water, acidulated with 10 drops of muriatic acid and kept at a temperature of 100 to 105° Fahrenheit, dissolved 120 grains of coagulated albumen. Under identical conditions, 60 grains of Boudault's Pepsin* dissolved the same amount; 40 grains of Boudault's Pepsin dissolved the same amount; 30 grains of Boudault's Pepsin did not quite dissolve it; 60 grains of Grimault's Pepsin dissolved but 84 grains; 60 grains of Hawley's Pepsin dissolved but 60 grains. With

* The Boudault's Pepsin, I had used for experiments last winter, must have been adulterated or spoiled, as I recollect right well that it was a damp sticky powder of somewhat different color from the one I used this time, therefore its strength compared with the Liquid Pepsin was found so much less than in the present experiment.

Houghton's Pepsin most of the little cubes into which the coagulated albumen was cut, had not even lost their sharp angles and corners.

To substantiate the assertion made in my essay on Liquid Pepsin (*Am. Jour. of Pharm.* Mar., 1870) that Wine of Pepsin and all other preparations of Pepsin containing alcohol were devoid of digestive power, I made the following experiments: Two equal quantities of dry Pepsin were dissolved in acidulated water, and to one of them, after solution, one third of alcohol was added. The same amount of coagulated albumen was put into each bottle. By the time that the albumen in the vial without alcohol was entirely dissolved, the albumen in the other one was not acted upon, and the little cubes had retained their shape. Dry Pepsin, precipitated with alcohol from its solution, was dissolved in acidulated water and coagulated albumen added to it; a solution of my dry Pepsin was likewise made, and the same quantity of albumen added. The Pepsin made with alcohol did not seem to act at all on the albumen, which appeared to be exactly the same in shape and bulk as when it was put in, when my Pepsin had dissolved the albumen entirely.

It seemed to me of importance to find if Pepsin made from calf rennet was identical with that made from the hog. I therefore prepared Liquid Pepsin from rennet in exactly the same way and the same proportions, as from the mucus membrane of the hog's stomach. When compared with Liquid Pepsin as to its digestive strength it was found that pork Pepsin dissolved about one third more of coagulated albumen than calf Pepsin in the same time. With dry Pepsin made from rennet I obtained the same result. By experimenting with lean beef meat the difference was still more in favor of the pork Pepsin, as a certain quantity of beef was dissolved by this, while the calf Pepsin had loosened the fibres and softened the meat, but the bulk was not appreciably diminished.

Louisville Ky., December, 1870.

NOTE ON OPIUM CULTURE.

By GEORGE W. KENNEDY, of Pottsville, Pa.

The author, in a letter to the editor, informs that he procured poppy seed from abroad, and supplied it to a friend in Illinois, with the view of trying an experiment in opium culture. The seed were planted in rows two and a-half feet apart, in well manured, rather dry soil, and

in moist soil. The seed sown in the wet soil failed. The plants received good garden culture, and attained a height of three feet. After the petals had fallen and the capsule attained some size, horizontal incisions were made around the capsules in the afternoon, and the exudation removed in the morning and dried in the sun. Some of the capsules failed to yield any juice, owing to the wound being too deep, and the juice passing into the cavity of the capsule. The yield of opium was small, many of the plants being imperfect. Mr. Kennedy made a partial examination of it and detected meconic acid, and when treated by Mohr's process, with subsequent crystallization of the precipitate from alcohol, yielded 8.75 per cent. of morphia crystals, which gave the proper reactions with nitric acid and chloride of iron.

Mr. Kennedy hopes to make a more successful experiment next year.

A LITTLE SIDE-TALK WITH THE "FRESHMEN" IN PHARMACY.

BY THE EDITOR.

Some months ago Prof. Attfield, of London, in reply to certain queries relative to the manner of teaching practical pharmacy by the Pharmaceutical Society, informed us that what is here called extemporaneous pharmacy was not taught by that institution, but that pharmaceutical and analytical chemistry occupied the students in their practical school, giving as a reason that all matters pertaining strictly to Galenical pharmacy needed by students were derived from the preceptors where their time was served. Unfortunately, as much cannot be said in this country. The demand for pharmaceutical service has far outstripped the supply of well-grounded pharmacutists; mere tyros from necessity have many times assumed the position of principals, and in turn being teachers, their tuition has not seldom been the reflection of their own disadvantages. It was to meet this difficulty at home that the Chair of Pharmacy was established in Philadelphia 24 years ago, and in the Practical School commenced the present session it is proposed to afford practical instruction in the most essential details of a dispensing store. The chief hope of beginners is, however, the preceptor, and the books. If among these there are "freshmen" who need a word of advice, who feel discouraged at the slowness of their progress, or the apparently trivial character of

their engagements, to these we would offer a word of encouragement and advice, based on personal experience.

The situation of a boy just entered on duty at a dispensing store is not to be envied. The calls for his service are numerous and frequently beyond his appreciation, so as to make him feel that he is as yet almost powerless to perform his duties from his ignorance of the material with which he has to deal. Besides the mechanical operations, which require dexterity and nimbleness, and which at first are performed with a bungling slowness, he is constantly at fault in finding the locality of drugs, when called by name, or the implements required by a dispenser on whom he is waiting. This epoch soon passes, as with even mediocre perception he should soon acquire sufficient knowledge to render useful aid in many ways. The rapidity of his advancement, next to his natural ability to learn, is much influenced by the character of the dispenser with whom he is associated, and to whom mainly he is to owe the lessons and instruction he is to receive. His duties, besides the cruder ones of opening, sweeping and dusting the shop, making fires, etc., embrace, in a thorough establishment, the use of the contusing mortar and pestle and the hand-mill in preparing drugs for percolation and infusion, the washing of mortars and graduated measures, the cleansing of spatulas and other implements used for ointments, the washing of new and old bottles, the replacing of bottles, etc., used at the counter, cutting labels, making paste, filling shop bottles and drawers from the storehouse and the cellar, the filling, corking, sealing and labelling of bottles of liquid and other preparations, wrapping packages and folding powders, making and using filters, the management of gas heat in making syrups, infusions, plasters, etc., and in conducting evaporation and distillation, the stirring of liquids for extracts, the making of pill masses and the rolling of pills, garbling and cutting drugs, and many other engagements, too numerous to mention here. Not one of these but may be well or ill taught, and carefully or slovenly learned. The old quotation, "as the twig is bent the tree's inclined," applies forcibly to this period, and he is a fortunate youth who falls under the guidance of an earnest and sensible instructor, whose patience is equal to the task of bearing with the aberrations of the beginner. The object of this appeal to the young minds in pharmacy is to urge on them the great value to them in after years of a thorough mastery of these preliminary rudimental details, in which too frequently they

receive no special instruction, having to "*pick up*," as best they can, how to do what they are told. In contusing drugs for powders, when the pestle is held firmly, and the blows planted on a different spot each time, so as to bring the whole material under its action, much more progress is made than when it is carelessly dangled about, striking the sides of the mortar, as though the object was to make much noise. In triturating, Dover's Powder for instance, the same advantage is gained by a constant change in the path of the pestle, so as to cover every portion of the comminuting substance, by alternate spiral motions from the centre to circumference and back again. In nothing is the difference between good and ill training manifested sooner than in cutting and placing labels on bottles and boxes, and the beginner should practice the use of the shears both on curved and square labels until he can not only cut them neatly but quickly; a label with a loose edge or an irregular outline is a mute though less forcible rebuke to the dispenser than when it returns to him for renewal upside down on the bottle, or on the bottom of the pill-box. The washing of mortars often involves far more science than the beginner possesses, and he has constantly to apply for information. Let each difficulty be a lesson for study; why an alkaline or alcoholic solution of soap should remove a resinous body, or an alkali Prussian blue, or muriatic acid a metallic sulphide. Scrupulously clean graduated measures are an ornament to any store and an honor to any junior, and are only attained by constant attention and the habitual use of a swab or feather to remove the insoluble matter precipitated on the interior surface from many liquids when diluted with water, in rinsing. Poisonous bodies like aconitia and veratria, when rubbed down on the ointment slab with alcohol, leave a stain not very perceptible, and which, overlooked by the junior, might damage the next ointment. For this reason the dispenser should be responsible, unless he gives special directions to the junior.

There is a subject which we feel specially called upon to urge strongly on principals, especially druggists, as well as on our present friends, the beginners. *It is the want of order in the store-room and cellar.* How can the junior be sent with safety to fill bottles and drawers unless every receptacle is labelled correctly according to its contents? Many months must elapse or even years before *he* can rely on his knowledge. Labels drop off, covers become displaced, and at times residues returned to the store-room are heedlessly thrown into

the wrong barrel. We could adduce an instance where a long chapter of trouble arose from this cause in a neighboring city. Only lately one of the best dispensers of Dublin caused the death of a prominent citizen by an error arising from sending an ignorant agent to the store-room to fill the carbonate of ammonia bottle—cyanide of potassium being substituted. Hence the importance of an intelligent and frequent supervision of these depositories to insure *order*, out of which comes safety and dispatch, and untold satisfaction.

But the danger of getting prosy, from the very extent of the theme, admonishes us to be brief. Our young friend should bring to his aid an earnest intention to succeed, an obliging disposition, and all the patience that his nature admits of. Let him keep wide awake to what is going on, but especially to all that relates to the business in hand; let him gain the respect and confidence of his seniors by steady and reliable service; let him read attentively the preliminary chapters of Part Second of the United States Dispensatory, and such portions of the special works on Pharmacy as relate to his duties, and we will venture to predict that his difficulties will rapidly disappear, and be replaced by a consciousness of growing knowledge and developing power.

ON SULPHOCARBOLIC ACID AND SULPHOCARBOLATES.

BY J. CREUSE, of Brooklyn, N. Y.

Sulphocarbolic acid and its compounds are attracting more and more attention; they are noticed in all medical and pharmaceutical publications. It is to be regretted while processes for their preparation multiply, and so many have new ones to propose, that nobody should attempt to enlighten us on their chemical composition, and that our knowledge of them should remain so incomplete.

For example, all the writers almost take for granted that, in analogy with sulphovinic acid, sulphocarbolic acid consists of two equivalents of sulphuric acid and one equivalent of carbolic acid. In all cases, every one takes also for granted that to effect the combination, it is only necessary to mix the two acids in that proportion and apply a moderate heat.

My intention is to prove that, 1st, sulphocarbolic acid is composed of three equivalents of sulphuric acid and one of carbolic acid; 2d, to combine carbolic and sulphuric acids, without waste of carbolic acid,

it is necessary to take six equivalents of the latter and one of the former; 3d, sulphocarbates are composed of two equivalents of the acid and three of the base.

The process of examination I employed is simple enough: it consists in heating together various proportions of the two acids, and by means of carbonate baryta determining what quantity of sulphuric acid is converted into sulphocarbolic acid, what proportion of it remains free, and how much carbonate of baryta is transformed into the sulphocarbonate of the same base.

This is effected in this wise: Known weights of carbolic and sulphuric acids are mixed together, heated, and when cool diluted with water. To this a certain weight of carbonate baryta, always in excess, is added, and the liquid brought to ebullition, so as to avoid the formation of bicarbonate of baryta. The mixture is then poured on a filter and the filter well washed with water; the filtrate, which I will call liquor *a*, is kept aside. The filter is then washed, first with dilute muriatic acid, and then q. s. water, the washings being kept aside, and called liquor *b*. This done, the filter is dried and the weight of the precipitate taken, which I will call precipitate *c*.

Then liquors *a* and *b* are treated by an excess of sulphuric acid, and the weights of the precipitates ascertained. I will call them respectively precipitate *a* and *b*.

These three precipitates *a*, *b* and *c* consist of sulphate baryta, but each of them has a different meaning.

Thus, precipitate *a* indicates what quantity of the carbonate baryta has been transformed into sulphocarbonate.

Precipitate *b* shows how much of the carbonate baryta was in excess.

Precipitate *c* tells us what proportion of the sulphuric acid remained uncombined in the mixture.

A few words about the *modus operandi* may not be unnecessary: for ascertaining the weight of the precipitates, I cut two filters from the same sheet of paper, trim them precisely to the same weight, and fold them together. The precipitate is collected on the inner filter, both filters are washed together by the same reagents, and dried together. The difference in weights gives quite accurately the actual weight of the precipitate.

By this process I have examined successively mixtures of one equi-

valent of carbolic acid with one, two, four, five, six and eight equivalents of sulphuric acid.

From the first to the fifth mixture, I remarked that precipitate *a* kept steadily increasing in proportion, and remained stationary afterwards. I noticed also that all mixtures containing less than six equivalents of sulphuric to one of carbolic acid had more or less of a carbolic smell, while in this last all odor had completely disappeared. From these two facts, I think I can safely conclude that it requires six equivalents of sulphuric acid to transform completely one equivalent of carbolic acid into sulphocarbolic acid.

Not wishing to make this communication too lengthy, I shall describe here only the examination of the 1st, 2nd and 5th mixtures, the most important.

The first, proposed by Mr. T. Omar Guy, was composed of one equivalent of carbolic acid and less than one equivalent of sulphuric acid, or in weight 94 grains of the former and 49 of the latter; it gave for 100 grains when treated by 35 grains carbonate baryta:

Precipitate <i>a</i>,	.	.	.	.	37 grs.
" <i>b</i>,	.	.	.	.	1 "
" <i>c</i>,	.	.	.	.	1½ "

The second, viz., one equivalent carbolic acid and two equivalents sulphuric acid, or in weight 94 grs. carbolic, 98 grs. sulphuric acid, gave for 100 grains, after saturation by 50 grs. carbonate baryta:

Precipitate <i>a</i>,	.	.	.	.	49 grs.
" <i>b</i>,	.	.	.	.	2 "
" <i>c</i>,	.	.	.	.	9 "

The fifth, containing one equivalent of carbolic acid and six of sulphuric acid, or in weight 188 grs. carbolic acid and 607 grs. sulphuric acid, 79 p. c. was made without heat. After two hours contact the mixture presented no carbolic smell whatever.

One hundred grains of it were treated by 140 grs. carbonate baryta, and gave:

Precipitate <i>a</i>,	.	.	.	.	41 grs.
" <i>b</i>,	.	.	.	.	32 "
" <i>c</i>,	.	.	.	.	92 "

As I remarked before, this is the proportion in which the two acids are to be mixed, in order to transform all the carbolic acid into sulphocarbolic acid.

The weight of the three different precipitates will also teach us the composition of both sulphocarbolic acid and sulphocarbonate of baryta.

Thus, 100 grains of the mixture contained 76.35 grs. of sulphuric acid, 79 p. c. or 60.31 grs. of anhydrous sulphuric acid, and 23.65 grs. of carbolic acid.

Of these 60.31 grs. of sulphuric acid, 31.64 grs. remained free, as shown by the 92 grs. of sulphate of baryta (precipitate *c*), formed by it. Thence, the balance, 28.67 grs., was combined with 23.65 grs. of carbolic acid, forming a certain amount of sulphocarbolic acid, which saturated 27.22 grs. of baryta, as shown by the 41 grs. of sulphate baryta precipitated by an excess of sulphuric acid (precipitate *a*).

We have then for the composition of sulphocarbonate of baryta the following proportions:

Sulphuric acid,	.	.	.	.	28.67 grs.
Carbolic	"	.	.	.	23.65 "
Baryta,	.	.	.	.	27.22 "

Dividing these numbers by the respective equivalents of the chemicals they represent we obtain:

Sulphuric acid,	.	.	7.16	$\left\{ \begin{array}{l} \text{or, in} \\ \text{round} \\ \text{numbers,} \end{array} \right\}$	6 equiv.
Carbolic “	.	.	2.48		2 “
Baryta, .	.	.	3.54		3 “

This does not evaluate the equivalent or equivalents of water, but is a sure guide for the preparation of sulphocarbolic acid and the sulphocarbonates.

Preparation of Sulphocarbolic Acid.

This is the process I should recommend to prepare pure sulphocarbolic acid:

Carbolic acid (Calvert's No. 1),	.	.	188 grs.
Sulphuric acid, pure, 79 p. c.,	.	.	607 "
Carbonate baryta,	.	.	q. s., or 636 "

Melt the carbolic acid, add to it the sulphuric acid by small portions, and let stand in a warm place till all smell of carbolic acid has disappeared. Dilute the liquid with eight times its volume of water, add the carbonate baryta, bring to ebullition and filter. The filtrate should give no precipitate with either sulphuric acid or nitrate baryta.

As sulphuric acid is of variable strength, and the quantity of car-

bonate of baryta is intended only to accurately saturate and remove the free sulphuric acid, it may be necessary to add to the filtrate a little carbonate baryta or sulphuric acid, till it answers the requisite test. The liquid should be then evaporated at a gentle heat, away from the influence of light, and allowed to crystallize.

Pure sulphocarbohic acid is colorless, has no smell, dissolves in water, alcohol and ether, in all proportions; it does not seem to possess any antiseptic properties, for its watery solution becomes mouldy in forty-eight hours when the weather is warm. Nitric acid, especially with the help of heat, decomposes it, forming, among other compounds, picric and sulphuric acids.

Sulphocarbolate of Soda.

This salt may be prepared by saturating sulphocarbohic acid by carbonate of soda. By evaporation, abundant crystals are obtained without difficulty.

Sulphocarbolate of soda is inodorous, almost colorless; it is reddened by exposure to direct sunlight. The shape of its crystals is very much like that of sulphate of zinc. It is neither efflorescent nor deliquescent.* It dissolves readily in water, less so in alcohol, not at all in ether. Nitrate of baryta causes no precipitate in its solution. Sulphocarbolate of soda cannot be kept in weak solution without turning mouldy in warm weather. It is decomposed by nitric acid into sulphate soda, free sulphuric and picric acids, etc.

Sulphocarbolate of Zinc

Is obtained by saturating sulphocarbohic acid with a slight excess of carbonate or oxide of zinc recently precipitated. It crystallizes easily, in the shape of flattened prisms. It has no smell, no color, or hardly any, and tastes very much like sulphate of zinc. It is soluble in water and in alcohol. It is not precipitated by salts of baryta. Direct sunlight affects it much more than the corresponding salt of soda, so that it is more difficult to obtain colorless. It is decomposed by nitric acid in the same manner as sulphocarbolate of soda. Its solutions turn mouldy in warm weather, unless they are concentrated.

The other sulphocarbolates may be prepared in the same manner, should any be required.

Though the above experiments show that *pure* sulphocarbolates

* It tastes like sulphate of soda; slightly bitter and salty, but not acrid.

have no antiseptic power on inert matter, it does not prove at all that they are useless where the human body is concerned. On the contrary, facts tend to show that in the economy carbolic acid is freed from its combination, and that sulphocarbates are valuable compounds to administer when the effects of carbolic acid are desired, without its caustic properties.

CHEAP PROCESS FOR PREPARING CARBONATE OF BARYTA.

By J. CREUSE, Brooklyn, New York.

Carbonate of baryta is a precious reagent to the chemist on account of its very precise combinations, its strong affinities, and the facility with which it can be transformed into the other baryta salts. Unfortunately, the use of carbonate of baryta is limited by the high price it commands. This objection indeed has been made, not without reason, to the process I have proposed for the preparation of sulphocarbolic acid and its compounds.

Precipitated carbonate of baryta is quoted \$1.25 per lb. by the manufacturing chemist; it is a high figure, considering that the natural carbonate, otherwise called *witherite*, can be bought in quantities at 8 cts. a pound, already ground.

This great difference in prices is caused by the imperfections of the only process published for refining the natural carbonate. This process, which consists in first making sulphate of baryta, then transforming it, by ignition with charcoal, into sulphuret, is long, tedious and expensive.

I beg to propose another process, whereby, the formation of sulphate baryta being avoided, carbonate of baryta may be obtained sufficiently pure for one-eighth of the usual cost.

It is this:

Take of witherite, in lumps or in powder, any convenient quantity; add to it four or five times its weight of water, and dissolve it with muriatic acid, gradually added. Stop the addition of acid before the mineral is entirely dissolved, so as to have an excess of baryta rather than an excess of the acid. Allow to settle, and decant the clear liquid; to this add a solution of oxalic acid as long as a precipitate is formed; a slight excess is not objectionable. Thirty grains are generally sufficient for each pound of witherite, though the proportion may vary according to the purity of the mineral. Allow the liquid to stand one hour; filter, and add to the filtrate a quantity of caustic soda,

just sufficient to give it a decided alkaline reaction. After an hour's rest filter again, and treat the liquid by a solution of carbonate of soda. Collect and wash the precipitate in the usual manner.

This process of refining is founded on a fact I have observed, that when a solution of oxalic acid is added to a liquid containing salts of lime and baryta, both, all the lime is precipitated first and immediately, while baryta is only affected after some time. The lime being thus eliminated, caustic soda precipitates all the foreign bodies likely to be present, such as iron, alumina, copper, lead, etc.

It may be objected that this process does not free baryta from strontia. To this I will answer that, 1st, strontia is seldom if ever found in witherite; 2d, the old process is no better, as sulphate of strontia is almost as insoluble as sulphate of baryta. If, however, a chemically pure carbonate of baryta is desired, it may be obtained by a slight modification of the *modus operandi*. It is only necessary to use pure chemicals, and purify by repeated crystallizations the chloride of barium previous to the addition of the carbonate of soda.

ON THE SO-CALLED BUCHARIAN RHUBARB.

By A. FERRO, of Moscow.

In my thesis on the kinds of rhubarb at present in Russian Commerce*, I have described a so-called Bucharian Rhubarb, which was frequently met with in Russia during the years 1864 and 1865. I was at that time unable to discover the route by which it had entered Russia; but the fact was that it was in considerable quantity at the fair of Nishni-Nowgorad, also in St. Petersburg and Moscow, and was likewise often sold in the southwestern provinces of Russia. Prof. Dragendorff has investigated its history and furnished me with conclusive evidence that it did not come from Bucharia, but was imported from the west into Russia. The law forbidding the entry into Russia of all except the crown rhubarb, being then still in force, the name had evidently been selected to cover up its true origin. Even in Germany attempts were made in 1866 to introduce this rhubarb under the false and nonsensical name of Japanese rhubarb, and in 1868 it was there sold as flat English rhubarb. This latter name it ought to retain in future, since it was imported from England and most likely cultivated there.—*Pharm. Zeitschr. f. Russl.*, 1870, Sept. 511.

J. M. M.

* See Amer. Journ. Ph. 1867, 212.

THE STRENGTH OF FLUID EXTRACTS.

BY JAMES W. MILL.

It has been proposed recently, in this journal and elsewhere, to reduce all fluid extracts to one uniform strength—that, viz., of eight troy ounces of drug to the pint, instead of sixteen troy ounces as is the rule now. In favor of this proposition it is urged that it is practically impossible to carry out the present formulas of the Pharmacopœia for this class of preparations, the drug being directed in such very fine powder, and the expenditure of time and labor, necessary to secure a successful result, so great, to say nothing of the waste of alcohol, that dispensing pharmacists cannot, or, in fact, with only an occasional exception, do not prepare them themselves, but, instead, purchase the ready-made inferior products of the wholesale manufacturer. The reduction of the strength, as proposed, it is claimed, would obviate all trouble,—dispensing entirely with the application of heat, ensuring the complete exhaustion of the drug, and enabling the pharmacist to prepare his own fluid extracts in any quantity desired, and with very little trouble or expense,—a single percolation, to the extent of two pints for every sixteen troy ounces of drug, being all that would be necessary.

The writer fully realizes the great expenditure of time, labor and attention necessary to the correct preparation of fluid extracts of the present strength, and would gladly welcome any new process by which the desired object could be accomplished more easily. The proposed reduction of strength would, it is true, very materially lessen the labor, and render the preparation of a fluid extract a comparatively easy matter, but could such a preparation, with any propriety, be called a *fluid extract*? The term, “Fluid Extract,” it is true, is purely arbitrary, and may be made to mean a fluid preparation, representing in every pint the medicinal virtues of sixteen, eight, or even four troy ounces of drug; but in a work like the Pharmacopœia, claiming something of a scientific character, there surely should be as close a relation as possible between the language employed and the meaning intended to be conveyed. Now an “Extract,” as defined by Wood and Bache in the U. S. D., is well understood to mean “a solid substance resulting from the evaporation of the solution of vegetable principles, obtained either by exposing the vegetable to the action of a solvent, or by expressing its juice in the recent state.” Would not

then the term "Fluid Extract" mean simply an extract-fluid, and very aptly characterize either the solid extract liquified to a point at which it would be permanently fluid, or the original solution evaporated down to that point? Owing to the varying amount of soluble medicinal matter contained in different drugs, fluid extracts made on this plan would, as a class, be very various in strength,—a given quantity of one fluid extract representing one proportion of drug, and another a different proportion,—practically, therefore, so great concentration is not desirable, and some standard is necessary which includes uniformity of strength and facility of preparation, as well as adaptability to the wants of the physician. The present standard of sixteen troy ounces to the pint seems best to fulfil these requirements. Made of this strength, a fluid extract of a drug is its fluid representative, to all medicinal intents and purposes, the same thing as the drug itself—superior to it, in fact, in having a more prompt therapeutic action and readier facility of administration. What more desirable preparation of a crude drug could be offered the medical profession or their suffering patients?

But—and this is the main question—are fluid extracts of this strength practicable? Is their correct preparation within the range of the usual facilities of a dispensing establishment? Or does it involve so great an expenditure of time and labor, and so great an outlay for costly apparatus, that the already much pre-occupied pharmacist may justly excuse himself from the undertaking? While protesting against any change in the strength of fluid extracts, the writer does not endorse the formulas given by the Pharmacopœia for their preparation. Indeed, literally construed, they are impracticable. It is practically impossible, with the usual facilities to be found in stores,—even the best appointed,—to reduce a drug to the degree of fineness directed by the Pharmacopœia. For example, in the process for fluid extract of buchu, the drug is directed to be in powder "moderately fine," *i. e.*, a powder that will pass through a sieve of fifty meshes to the inch. Now it is simply not possible to accomplish this within any reasonable time, or when any but the smallest quantities are operated on. In the experience of the writer it requires considerable muscular exertion to obtain even one-third of any given quantity (over a few ounces) in the state of fineness directed. The only practicable thing is to grind the drug as fine as possible, and sift it successively through sieves twenty, forty, and sixty meshes to

the inch,—repeating the operation two or three times, or so long as any fine powder is obtained. In packing for percolation the powders are arranged in the order of their fineness, commencing with the finest—thus exposing the least permeable portions of the drug to the most solvent portions of the menstruum, and also ensuring a slow rate of percolation, so essential to a successful result. Operating in this way, perhaps a little more menstruum is required than if the drug were in “moderately fine” powder, as directed, but then the process is brought within the range of practicability, while before it was not.

The low degree of temperature directed for the evaporation of the percolate furnishes another ground for reasonable objection to the officinal processes, on account of the waste of alcohol, the temperature specified not permitting of its recovery by distillation. Economically considered, and on the scale of the Pharmacopœia, this objection hardly has any weight, as the waste would be but trifling; on any larger scale, however, the saving of the alcohol becomes a matter of some economical importance, and its recovery therefore, by distillation in a water bath still, should receive the sanction of the Pharmacopœia. No appreciable injury to the medicinal matter can result from the necessary increase of temperature, as this would be more than counterbalanced by the more perfect exclusion of atmospheric influences.

With these modifications of the formulas surely the preparation of fluid extracts, of the strength of sixteen troy ounces of drug to the pint, is not a very difficult matter. The apparatus required is exceedingly simple, a drug mill, a set of sieves, a percolator, and a water-bath still being all that is necessary. Is there a druggist in the land who considers his vocation anything more than the mere buying and selling of drugs, not already possessed of these necessary implements of his art? Scientifically considered a simple matter, the correct preparation of a fluid extract does involve strict care and attention, and a conscientious selection of the crude material. No amount of *science* will atone for poor material or careless manipulation.

The proposed reduction of strength, it is claimed, would ensure the complete exhaustion of the drug. In a limited number of instances, doubtless, this claim would hold good,—in drugs, for example, like ginger, which yield their medicinal matter easily and readily to a solvent; but that senna, rhubarb, cinchona, or drugs generally, can be exhausted in this way, is altogether contrary to the writer's experience. Just the amount of menstruum necessary for exhaustion varies, of

course, with the varying amount of soluble medicinal matter contained in different drugs; but, as a rule, adapted to the treatment of drugs generally on the small scale, and in an ordinary displacement funnel, three pints of percolate for every sixteen troy ounces of drug, although excessive in some cases, no doubt is yet the safest for general use. Were the percolation stopped at two pints of percolate for every sixteen ounces of drug, the resulting preparation would, in most cases, be simply a concentrated tincture, representing no definite quantity of drug,—superior, perhaps, to many of the so-called fluid extracts of the market, but by no means to be considered a true representative of the original drug. Doubtless there are physicians to whom the excess of alcohol would not be an objectionable feature, and who would prefer such concentrated tinctures, prepared by the apothecary himself, to the uncertain products of the market. It might be well enough therefore (although the writer does not recommend it), to introduce them into the Pharmacopœia, under, however, a separate and distinct title, such as *Tincturæ Fortiores*, retaining *Extracta Fluida* for the many physicians who dislike to prescribe alcohol, except in minimum doses.

The following formulas illustrate the ideas of the writer on this subject:

Extractum Buchu Fluidum.

Take of Buchu, sixteen troy ounces.

Glycerin, four fluid ounces.

Alcohol and Water, sufficient.

Grind the buchu, and sift it successively through No. 20, No. 40, and No. 60 sieves, keeping the result of each sifting separate. Mix the glycerin with twenty fluid ounces of the alcohol, and with five fluid ounces of this menstruum moisten the different lots, and introduce them successively into the percolator, commencing with the finest; pack firmly, and gradually pour on the remainder of the alcohol and glycerin, following it with a mixture of alcohol and water in the same proportion, till the drug ceases to absorb any more and the menstruum remains permanently on the surface; then, having closed the orifice of the percolator with a cork and put on the cover, set aside to macerate. At the end of twenty four hours, or longer, remove the cork and allow the percolation (which should not be faster than ten drops per minute) to proceed. When the liquid has disappeared from

the surface pour on menstruum till twelve fluid ounces of percolate have passed; set this portion aside, and continue the percolation with the remainder of the menstruum, and finally water, till the buchu is exhausted, or until two pints more of percolate have been obtained. Concentrate this by distillation in a water-bath still till reduced to four fluid ounces, and mix it with the reserved percolate. Allow the mixture to stand for twenty-four hours and filter through paper.

The menstruum employed in this formula is less alcoholic than the Pharmacopœia directs, but it is sufficiently so to extract and retain in solution the active principles of buchu. The glycerin seems to prevent the separation of resinous matter, which occurs during distillation, when a purely alcoholic menstruum is employed. In the unfiltered fluid extract no deposit had occurred after the lapse of several weeks.

In connection with this fluid extract the following observations may be of some interest: Thirty-two troy ounces of buchu were prepared in the manner above described, and packed in a percolator six feet high and two inches wide at the mouth, gradually tapering to one and a quarter inches at the bottom. A full supply of menstruum (alcohol three parts, water one part, sp. gr. .895) was poured on at the beginning, and percolation commenced on the second day after at the rate of about ten drops a minute. The percolate was received in a small flask, in nine separate portions, each measuring seven and a half fluid ounces. The first portion was received about twenty-four hours after the commencement of percolation, and the remaining portions at intervals of about the same length. They had the sp. gr. respectively of .995, .985, .965, .960, .950, .935, .920, .910, .900. A mixture of the first four portions, with sufficient of the fifth added to make the measure up to thirty-two fluid ounces, had the sp. gr. .965. A parallel experiment, conducted in an ordinary cylindrical glass percolator, three and a half inches in diameter, and fifteen inches high, showed the same ultimate result, but not so great concentration in the first portions of percolate—the sp. gr. of the first thirty-two fluid ounces being .960 instead of .965 as in the other experiment. The last portion of percolate had a very light color, and but little of the odor or taste of buchu, and the drug may safely be considered exhausted at that point. All drugs, however, are not so readily exhausted as buchu; and although, in this case, thirty-two fluid ounces of percolate would very well represent sixteen troy ounces of drug, it does not follow that it would be a safe rule in all cases; it is only pru-

dent therefore that the Pharmacopœia should direct a little too much menstruum in some instances than not enough in others.

Extractum Cinchonæ Fluidum.

Take of Cinchona, yellow, sixteen troy ounces.

Alcohol, four pints.

Glycerin, eight fluid ounces.

Grind and sift the cinchona in the same manner as directed for buchu, mix the glycerin with three pints of the alcohol, and with six fluid ounces of this menstruum moisten the cinchona, and pack moderately in a glass percolator; pour on the balance of the alcohol and glycerin, and then the remaining pint of alcohol, following it with water, till about four pints of percolate have been obtained. Put the percolate into a water-bath still and distill off the alcohol till reduced to the measure of sixteen fluid ounces. This is essentially the formula recommended by Dr. Squibb (Amer. Jour. Phar., vol. 39, page 515), differing only in this, that the glycerin forms part of the menstruum—thus securing its solvent as well as its preservative influence, and also reducing, to the extent of the quantity of glycerin present, the amount of evaporation necessary. With the glycerin diluted to the extent it is in this formula the percolation is not too tedious.

Extractum Hyoscyami Fluidum.

Take of Henbane Leaf, sixteen troy ounces.

Glycerin, four fluid ounces.

Alcohol and Water, each a sufficient quantity.

Mix the glycerin with twelve fluid ounces of alcohol and eight fluid ounces of water, and with six fluid ounces of this menstruum moisten the henbane previously prepared for percolation. Pack firmly in a cylindrical glass percolator, and pour on menstruum till the surface remains covered; macerate for twenty-four hours, then proceed with the percolation, using the remainder of the glycerin menstruum, dilute alcohol and water successively till at least three pints of percolate have been obtained. Of this reserve the first twelve fluid ounces, and distill the remainder in a water-bath still till reduced to eight fluid ounces; to this add the reserve percolate, and continue the distillation till reduced to such a point that, when cold, the finished fluid extract shall measure exactly sixteen fluid ounces.

In the same way prepare fluid extract of senna, uva ursi, spigelia, sarsaparilla, dulcamara, serpentaria, taraxacum, and gentian.

Extractum Rhei Fluidum.

Take of Rhubarb, sixteen troy ounces.

Alcohol,

Diluted Alcohol, each a sufficient quantity.

Glycerin, four fluid ounces.

Mix two fluid ounces of the glycerin with fourteen fluid ounces of alcohol, and with six fluid ounces of this moisten the rhubarb (ground, and as much as possible of it passed through a No. 40 sieve). Pack moderately in a conical glass percolator, and pour on the remainder of the glycerin and alcohol. Macerate for twenty-four hours, then mix the remaining two fluid ounces of glycerin with one pint of alcohol and fourteen fluid ounces of water, and with this and diluted alcohol continue the percolation till first sixteen fluid ounces, which reserve, and then about two pints more of percolate have been received; this latter percolate distill in a water-bath still till reduced to twelve fluid ounces, to this add the reserve percolate, and continue the distillation till reduced to such a point that, when cold, the fluid extract shall measure exactly sixteen fluid ounces.

Carefully prepared in this way, from really good material, fluid extracts are very faithful representatives of the original drugs, and their preparation is not more difficult than is that of compound syrup of sarsaparilla, for example, or any other preparation requiring care and attention. Aside from the satisfaction of knowing just what he is dispensing, the preparation of fluid extracts by the apothecary further recommends itself on economical grounds, for by the saving of the alcohol and by taking the precaution to prepare a season's supply during the winter,—when there is more leisure time, and when the same fire can be used that is used for heating purposes,—their cost can be brought considerably below the price paid to the wholesale manufacturer.

Chicago, Ill., August, 1870.

—*The Pharmacist, Chicago, Oct. 1870.*

[NOTE.—We cannot withhold a hearty approval of the views offered in the paper of Mr. Mill in favor of retaining the officinal strength of fluid extracts, and of the manner of executing the processes. The constant complaint amongst apothecaries of the present day in regard to the labor of comminuting drugs seems to indicate a growing contempt for the mortar and handmill as proper pharmaceutical implements. There has also grown up in the pharmaceutic mind a remarkable dread of the effects of heat, be it ever so moderate, on the

medicinal power of drugs. It is admitted at once that direct heat has a tendency to injure all solutions of organic matter; but when the water bath (or water bath still) are employed, they embody every requisite, except in case of very volatile substances, as the temperature of the former may be regulated when necessary as low as 120° Fahr., and the latter never exceeds 212° Fahr.; but even these are laid under ban by some of the writers of the later times. Some of these *reforms* are certainly to be deprecated as a decline in the practice of our art, and while we shall hail the advent of any process which shall really substitute evaporation in fluid extracts, we believe a more serious attention on the part of the fathers in pharmacy to the improvement of the means of comminution *in* the apothecary's shop will result in real progress in the art of extracting drugs.—EDITOR *AM. JOUR. PHARM.*]

A COMBINED SOLUTION OF PEPSINE AND PANCREATINE.*

The value of pepsine as a remedial agent in cases of indigestion is generally admitted, but experience has proved that it is only in certain forms of indigestion that it is of use.

Food is divided into two classes, nitrogenized and unnitrogenized. The former, being digested in the stomach, is acted on by pepsine; the latter, digested in the intestine, escapes its action almost altogether. The only action pepsine, as it appears in the gastric juice, seems to have on fat is to dissolve the albuminous cell-wall, so leaving the fat free to be acted upon by the pancreatic secretion. This suggests a probable cause of indigestion; for if the gastric fluid be deficient in quantity or quality, the albuminous cell-walls of the fat may not be dissolved, the fat is not acted on sufficiently by the pancreatic secretion, and not being emulsified, cannot be taken up by the lacteals. On the other hand, diseases of the pancreas or intestine, by checking the absorption of fat, may cause indigestion incurable by pepsine. This indigestion should be treated by pancreatine, the chief action of the pancreatic secretion being the emulsion of fats.

There being two classes of food to be digested, each in a different portion of the digestive tract, it is evident that the more perfectly one is digested the more easily will the other be. If the stomachic digestion be weak, the fat granules are not set free nor the fibrine dissolved as they should be; the consequence being that the pancreatic secretion cannot do its work properly. If the intestinal digestion be weak,

* Abstract of a paper by Richard John Kinkead, B. A. and M. T. C. D., in the *Lancet*, No. xx. vol. ii. 1870.

the emulsifying of the fats as they pass from the stomach being imperfectly performed, the food is detained longer in the stomach than is right, the proportion of fat to fibrine is increased, the fat enveloping the nitrogenized food hinders the action of the gastric juice, and acidity and stomachic indigestion are produced. In treating stomachic indigestion, therefore, it is important to accelerate the digestion of fatty and saccharine portions of the food; and in intestinal to accelerate and perfect the digestion of the albuminoids. There are also cases in which the digestion of both the nitrogenized and unnitrogenized food is at fault.

Impressed with the foregoing ideas, Mr. Edward Long, of Dublin, sent to the author a sample of his solution of pepsine in glycerine, asking him to try it in practice, and give his opinion upon it. The author, however, thought that a solution of pepsine and pancreatine, combined in suitable proportions, would fulfil the conditions necessary for a perfect digestive; he therefore suggested to Mr. Long the preparation of such a solution. The result of the experiment is given in a letter from Mr. Long to the author, from which we give the following extracts:—

“Following up the subject of our conversations some time since, I have been making experiments on pancreatine obtained directly from the fresh pancreas of the calf. The result has been quite what might have been expected from *á priori* reasoning, as you will see from the subjoined statements.

“Some difficulty was experienced in obtaining the solution of pancreatine in an eligible form for administration; but at last I succeeded in producing what as closely as possible represents the digestive fluids found in man. It is composed of pepsine and pancreatine in suitable proportions, using for the former a solution of pepsine introduced by me some time ago, and adding the solution of pancreatine as now prepared.

“In the experiments made to test its effects a very curious result was observed. Meat—beef and mutton—digested in pepsine alone was found to be entirely dissolved with the exception of the fat, which floated as a film on the surface, and the film was entirely emulsified when a proper quantity of pancreatine was added, and the usual conditions as to temperature, etc., attended to. This is exactly what we might expect, reasoning from known physiological principles.

“Pepsine in an effectual form has been a great boon; but, as I

have shown above, it will not digest the oily or fatty aliments ; failing thus to supply the system with the substances vitally necessary in strumous diseases. It is obvious how desirable the action of this fluid will be as an addendum to the use of cod-liver oil.

“The pancreatic emulsion has never seemed to me the nicest or most eligible mode of effecting what is desired. It is nauseous to the taste of many, and often keeps badly ; the quantity of mutton suet employed, which may be supposed to be all the fatty matter the pancreatine present is capable of emulsifying, is not as much as might be desirable in many cases. In some, suet at all may not be the most suitable form of fat. The fluid I now describe is very palatable, and will keep almost any time. It may be given with any kind of food. My experiments were made with fat mutton-chops and rich beef-steaks, as typical aliments, with most satisfactory results.

“The first experiments, thrice repeated, were made with muriatic acid, water, and the combined solution, to represent the gastric juice and pancreatic secretion. The second, with solution of pepsine alone, with acid and water, followed by the addition of the plain pancreatic solution after an interval of two hours. Both were entirely satisfactory ; but the latter were peculiarly interesting in a physiological point of view, as stated above, and tended to show the exact part played by each fluid in the animal economy. But as the administration of two fluids in succession would be troublesome in practice, and be scarcely attended to by patients (at all times averse to trouble), I have thought it desirable to mix the two in one fluid. This has the advantage of being quite agreeable, as liquor of pepsine always is ; while the taste of the liquor of pancreatine is entirely concealed by the former. Some medical friends of mine reported most favorably of it, after trial in practice.

“The experiments in the laboratory were as follows :—

“No. 1.—Mutton (fat and lean about equals parts), one ounce ; water, one ounce and a half ; muriatic acid, fifteen minims ; solution of pancreatine and pepsine, one drachm. Digested at 100° for four hours, this was converted into a homogeneous pulp, and then diluted with a little water, presented quite a *chylous* appearance.

“No. 2.—Beef (fat and lean), an ounce and a half. Treated in the same way, with same result, the pulp being much deeper in color.

“Nos. 3 and 4.—I then operated on the same quantities of each, first digesting with pepsine solution alone, as intimated above, and

then adding the liquor pancreatine—keeping up the heat. In these latter experiments the result seemed more perfect, but, as I have said, the same procedure would be rather inconvenient in practice.

“The results were found to be identical in three successive experiments, at intervals of several weeks.”—*Pharm. Journ., London, Nov. 19th, 1870.*

CUCUMBER OINTMENT.

Editor Pharmacist:

DEAR SIR,—Having been requested by a physician to prepare some cucumber ointment for him, I tried several formulas without producing as nice a one as I wished. I first employed that of Prof. Procter, but found that it was too troublesome and tedious, while it did not furnish an elegant preparation. The following is the formula which I have used, which is quite simple and easy, and any apothecary can prepare it.

Take of Oil of Sweet Almonds, seven fluid ounces.

Spermaceti, eighteen drachms.

White Wax, five drachms.

Glycerin, one fluid ounce.

Green Cucumbers, lbs. iv.

Cut the cucumbers in small pieces, mash them in a wedgewood mortar, let them macerate in their own liquor for twelve hours, express and strain; melt the almond oil, spermaceti and wax together, by means of a water bath; add to it the strained liquor, stirring constantly so as to incorporate the whole together. Set aside in a cool place (an ice chest preferred), till it becomes hard, then beat with a wooden spoon, so as to separate the watery portion of the cucumbers from the ointment, pour off the liquor thus obtained, and mix the glycerin with the ointment without the aid of heat, by working it with the hands until it becomes thoroughly incorporated. Put up in four ounce jars, cover with a layer of rose water, and set aside in a cool place. The ointment prepared in this way will keep sweet and nice for twelve months. It is much esteemed by physicians and the public generally in the south and southwest.

Respectfully,

LUTHER E. SALE.

Huntsville, Aug., 1870.

—*The Pharmacist, Chicago, Oct. 1870.*

THE OPIUM TRADE OF CHINA.

BY P. L. SIMMONDS.

Few are, perhaps, aware of the enormous trade still carried on in opium from India to China; and what is, probably, even less generally known, is that the poppy is largely cultivated in China itself, and that the native drug is beginning to replace much of the Malwa opium. Mr. R. Fortune saw the poppy extensively grown in China for the purpose of inspissating the juice, but was able to form no estimate of the quantity actually grown. We have, however, confirmatory recent evidence of the extension of the culture and production in China. More than thirty years ago it was stated in the *Chinese Repository*, on the testimony of the conseller Choo Tsun, that in his native province, Yunnan, the poppy was cultivated all over the hills and open country, and that the quantity of opium annually produced there could not be less than several thousand chests. Indian opium now brings in an average annual gross revenue to the Indian Government of about £8,200,000.

The value of the opium shipped from India to China in the last ten years is thus given in the official statistics; from which it will be seen that the average annual import has not varied very greatly in the two quinquennial periods, although there are alternate high and low years, and the price fluctuates much:

	£		£
1860, . . .	9,054,394	1865, . . .	9,911,804
1861, . . .	10,184,713	1866, . . .	11,122,746
1862, . . .	10,553,912	1867, . . .	10,431,703
1863, . . .	12,494,128	1868, . . .	12,309,915
1864, . . .	10,756,093	1869, . . .	10,695,654
Total, . . .	53,043,240	Total, . . .	54,471,822
Average, . . .	£10,608,648	Average, . . .	£10,894,364

In 1856 the consumption of Indian opium in China was about 82,000 chests, of 140 lb. each, but this was exceptionally large.

In his report upon the trade of Tien-tsin for 1866, our Consul drew attention to the fact that the increase in the importation of opium in that and the previous year had been immediately preceded by an Imperial edict, issued on the 28th April, 1865, which prohibited the cultivation of the poppy throughout the empire. He stated that though,

at first, the operation of this edict was beneficial to the trade in foreign opium, the poppy was still grown extensively, and the prohibition would prove ineffectual. That such has hitherto been the result is proved by the fact of another edict having been issued on the 31st January, 1869, redirecting all viceroys and governors to cause proclamations to be issued, forbidding altogether the cultivation of the poppy, which is stated to have been introduced from Kan-suh into Shen-si and Shan-si, and afterwards grown in the provinces of Kiang-su, Honan and Shan-tung. The ground of objection to the poppy, and even to potato culture, stated in the edicts, is that they withdraw land from the cultivation of rice and grain.

There is little doubt that the competition of native-grown opium has had much to do with the declining price of the foreign-grown since 1866, and that at the same time the increased production of the native has lessened the importation of Indian opium.

At Tien-tsin, since 1866, it is certain that a yearly diminishing importation has accompanied a yearly falling price, plainly indicating a decreasing demand for foreign opium. There is no evidence, however, according to Mr. Consul Mongan, of the decrease of opium smoking, but rather of its increase; and therefore it may fairly be inferred that the quantity of native opium has so much increased, or its quality so much improved of late, as to have shut out a considerable amount of the Indian drug. This inference, too, is much strengthened by the reference which the late edict makes to the spread of poppy culture over northern China.

In addition to the provinces enumerated in the edict, there is also ample evidence of extensive poppy cultivation in other parts of the Chinese empire. It seems to have been carried on for many years in the extreme south-west in the province of Yunnan, the largest portion of which has thrown off its allegiance, and is now a practically independent kingdom.

Sze-chuen has also been for many years a great poppy province, and the drug produced there very perceptibly affects the market at Hankow. When Lord Elgin visited that city in 1858, he stated (Blue Book, 1859, page 443) that he saw there "shops where native opium was openly advertised for sale. Mr. T. T. Cooper, in some notes on his travels towards India through Central China, speaking of Sze-Chuen, says, "In spring the country was white with the flower of the opium poppy, now one of the staple productions of the province;"

and Mr. A. Wylie, the well-known Sinologue, who has travelled lately in the same province, says in a letter, "One fact I can vouch for, and that is the widespread use of the drug, and consequent degradation of the people. It was pitiable to see the victims of this practice coming to us to ask for relief and desiring to be cured, and such were by no means confined to the lower classes. I believe the practice in Sze-chuen, as elsewhere, is very widespread among the literary and governing class. From all the information we could gather, it commenced in this province within twenty or thirty years past. In the 'Statistical Account of Sze-chuen,' published in 1817, which gives a detailed list of the productions of the province, the poppy is not named. I do not remember seeing any foreign, though it is sold there, but at every market the farmers bringing in their little lumps of native production were always to be met with. As far as I could learn, the price ranged from 140 to 250 cash the tael weight."

Another vast region, not mentioned in the edict of 1869, in which poppy culture has been spreading rapidly within the last few years, is Eastern Mongolia and Central and Northern Manchuria, the drug thence brought down to the coast competing with Indian opium in the Newchwang market. Thus, in the provinces of Yunnan, Sze-chuen, Shen-si, Kansuh, Shan-si, Honan, Shan-tung and Kiang-su, as well as in Manchuria and Mongolia, native opium is produced; and that its consumption by the Chinese is lessening the demand for the Indian drug, would seem to be indicated by the fact that in 1868 the total importation of the latter was less than it had been in 1867 by 4789 chests, representing a value, at the average ruling rate, of nearly two millions sterling.

These figures are given in a letter that was published in the *North China Daily News* of the 22d February, 1869.

Native opium sells in Tien-tsin at from 125 taels to 200 taels per picul less than Indian, and, though nominally prohibited, it pays a similar local duty to foreign. Opium is brought into Tien-tsin either crude or prepared. When in the former state it is generally spoken of as "tu," earth or clay, from its outward resemblance to lumps or cakes of common clay: and the native, as distinguished from the foreign, which is termed "yang-tu," or foreign earth, is called "hsi-tu," or western earth—a name that has clearly a geographical reference to the producing provinces. (Consular Reports, No. 2, 1869.)

Prepared opium, called "ya-pieu-kao," is generally composed of foreign and native drug boiled down, and often largely adulterated by an admixture of various glutinous substances, and amongst the rest by a decoction of the berries of a leguminous tree called the "huai-shu," which grows abundantly in the province.

Before concluding, I may give a few figures showing the imports and consumption of opium in the United Kingdom. Opium imported and used in this country :

	Imports. lb.	Consumption. lb.
1830, . . .	209,076 . . .	22,668
1845, . . .	259,644 . . .	38,229
1850, . . .	126,318 . . .	42,324
1855, . . .	50,143 . . .	34,473
1860, . . .	210,867 . . .	112,795
1865, . . .	401,571 . . .	225,571

The Board of Trade returns for the last two years are, of course, not yet issued.

The largely increased imports and consumption, unless a greater home stock is held, would give ground to the opinion that opium is beginning to be used somewhat extensively for other than medicinal purposes.

In 1858 we imported but 82,085 lb., and retained for consumption 77,639 lb. In 1868 we imported (nearly all from Turkey) 322,309 lb. and re-exported 123,965 lb., thus leaving 198,344 lb. for home consumption. The reshipments are principally to Holland, the United States, New Granada and the West Indies. In the latter countries it is evidently destined for consumption by the Chinese.—*Pharm. Journ., Lond., Nov. 5, 1870.*

MANUFACTURE OF IODINE FROM THE SO-CALLED CHILI SALTPETRE (NITRATE OF SODA.)

By DR. A. LACHMANN.

The author states that at Tarapaca, Peru, there are now obtained about 40 kilos. of iodine daily by means of a process which is described as follows :—The mother-liquors from the refining of the crude nitrate of soda are carefully mixed with a mixture of sulphurous acid and bisulphite of soda, whereby all the iodine present in the liquor is

precipitated in the free state as a blackish colored precipitate; the iodine thus deposited is next freed from adhering fluid by placing it in an earthenware vessel, at the bottom of which are placed several layers of clean sand, so arranged that the size of its grains decrease from the bottom upwards. On the top of this sand the wet iodine is put, the sand acting as a sponge to absorb the fluid. When the iodine has become dry, it is carefully removed from the vessel, but a thin layer of it is left on the sand; the crude iodine is refined by sublimation. The inventor of this process, a Frenchman named Thiercelin, has recently found that, instead of using sulphurous acid, it is more advantageous to employ nitrous acid, obtained in the shape of nitrite of potassa by the ignition of a mixture of 1 part of charcoal and 5 of nitrate of potassa; the nitrite obtained yields, when mixed with the mother-liquor, a precipitate containing some 80 per cent. of iodine.—*Chem. News, London, Nov. 4, 1870*

ON ALUMINIUM WEIGHTS.

By DR. T. L. PHIPSON, F.C.S.

For the last ten years—that is, since May, 1860—I have made use of a set of aluminium (division of the gramme) weights. On the average these weights have been used at least twice or three times a day for a period of somewhat more than ten years. They were supplied by MM. Collet, Frères, of Paris. Latterly, I have tested them and found them as accurate as the day on which they were first used. They are almost as brilliant as when new. The larger weights 0.5, 0.2, and 0.1 gramme show slight traces of tarnish, but their weights are still quite accurate.

During this period of ten years these weights have never been touched except by a pair of soft brass nippers, and they have never been left exposed to the air for more than a few minutes at a time. However, they have, of course, been exposed for a minute or two at intervals to an atmosphere more or less impregnated with acid or alkaline vapors, and if we add these odd minutes together, it will be found that these gramme divisions in aluminium have had to undergo a considerable amount of “atmospheric influence” during the period of which I speak.

I need scarcely say what a luxury it is to use such large weights as

these in comparison to the platinum gramme divisions, and I am surprised that they are not more generally adopted in our laboratories. The set contains 14 weights, from $\frac{1}{2}$ a gramme to $\frac{1}{2}$ a miligramme. As to brass or copper divisions, I have always considered them inaccurate, for they tarnish very rapidly in an atmosphere which, for that of a laboratory, might be considered tolerably pure. Weights of mallechort (a kind of German silver) resist much better than copper or brass weights; I have a set since the year 1856, the gramme divisions of which extend only to the centigramme, and are perfectly bright and accurate at the present day, but they have only been used occasionally.

The Cedars, Putney, S. W., October 10th, 1870.

—*Chem. News, London, Oct. 14, 1870.*

MALT EXTRACTS.

By ALBERT E. EBERT.

[The author states that two classes of preparations are known under this title, one analogous to lager beer having a three per cent. alcohol strength, of which the preparations of Hoff and Koch are examples; whilst the other kind is saccharine and gummy in their nature, and usually bear the name of Liebig. The author considers the first class to be good beer at an exorbitant price, and criticises severely those professional men who have given it their endorsement.

The second class of Malt Extracts, of which Ed. Loefflund and Dr. H. E. Linck, both of Stuttgard, are makers, are put up in patent medicine style, and though claimed as original, this point is questionable, as Malt Extract has long been known in Great Britain and Belgium as well as in Germany.]

Prof. Liebig does not lay any claim to the discovery or introduction of this preparation; we have heard him, during his lectures, denounce this attachment of his name to these extracts, it having been done in opposition to his wishes by parties who hoped to increase their sales by this seeming endorsement of their articles. We have lately made the malt extract, at the urgent request of physicians, and give herewith the process, so that pharmacists may prepare it themselves, instead of relying upon the specialist to supply it at exorbitant prices.

Take of Barley Malt, kiln dried, 10 lbs., av.

Water, a sufficient quantity.

The malt can be obtained at the malt-houses or breweries, by the bushel; reduce it by means of the drug mill so that it will pass through a No. 20 sieve, and add to the meal a sufficient quantity of cold water to form with it a soft dough; then add about two gallons of hot water, and apply heat so as to raise the temperature of the mixture to 150°, or not to exceed 158°. Maintain this temperature, with occasional stirring, for several hours, or until the whole of the starch is converted (by means of the diastase of the malt) into dextrine and glucose. The absence of starch can be ascertained by the application of Tr. Iodine to a small quantity of the liquor, when, if the starch has been wholly converted, no blue coloration will be evident. Then express the liquor rapidly, and pass it through a strainer. This is the most difficult part of the process, as it speedily clogs the strainer; this can be averted to some extent, by making a pulp by means of water, from common unsized paper, or filtering paper, and mixing this pulp with the expressed liquid, previous to straining. The perfectly clear fluid is finally to be evaporated, by means of a water bath, to the consistence of a thick syrup, having the sp. gr. 1.500, or approximately one pint, weighing 1½ lbs., av.

This extract has an agreeably, syrupy, taste, and contains, besides the sugar of the malt, dextrine, albumen, and the phosphates of the grain. In very hot summer weather it is liable to go into fermentation, but this can be prevented by the addition of a small quantity of glycerin.—*The Pharmacist, Chicago, Nov., 1870.*

A FEW NOTES ON ALOES.

BY WILLIAM A. TILDEN, B.Sc. LOND., F. C. S.,

Demonstrator of Practical Chemistry to the Pharmaceutical Society.

In the list of subjects for investigation issued to the members of the Conference is the following question, No. 176:—"Compound Decoction of Aloes loses bitterness after some time; to what is this due?"

Before attempting to answer this question, a few points in the chemistry of aloes require notice.

In the last edition of Pereira's 'Materia Medica' four proximate principles are enumerated as forming the most important constituents of aloes.

1. Aloetin, aloesin, amorphous aloin, bitter principle of aloes.

2. Crystallized or hydrated aloin.
3. Resin.
4. Aloesic acid; supposed by some to be gallic acid.

Experiments made by myself, in addition to those already published by Mr. Groves and other chemists, induced me to adopt an opinion respecting the constitution of aloes somewhat modified from the foregoing.

I. *Aloetin*.—The first of these bodies certainly forms a constituent very important as to quantity of all the varieties of aloes. There can be no doubt that it is the product of the alteration of crystallizable aloin, partly by the action of heat, partly by the oxidizing action of the air. I regard it as a mixture of anhydrous aloin, which is capable in the presence of water of recovering its crystalline condition, and the brown oxidized substance referred to further on.

II. Crystallizable *aloin* is the body to which especially all the varieties of aloes owe their bitterness. Its isolation is usually thought to be a matter of some difficulty, but the following simple process will furnish any desired quantity,—pounds if necessary.

Select a specimen of Barbadoes aloes, the most powerfully odorous that can be procured, bright-looking, and not the most waxy; break it up and dissolve it in a quantity of boiling distilled water, to which a few drops of sulphuric, sulphurous, or hydrochloric acid have been added. The proportions employed may be those of the Pharmacopœia for Extractum Aloes, viz. one pound to a gallon. Let the liquid stand a night to deposit resin, then pour it off and evaporate quickly till, if 1 lb. of aloes have been used, about 2 lbs. of liquid remain.

This left for twenty-four hours will deposit an abundant crop of yellow crystalline matter. The fluid portion poured off and duly concentrated yields a first-rate extract. The yellow crystals must be well drained and pressed, and will yield pure aloin by recrystallization once or twice from water mixed with a small proportion of rectified spirits. If the selection of the aloes be looked to, the product will amount to about 20 per cent. of the material employed.

Aloin has been said to be with great facility decomposed or altered by the simple application of heat to its aqueous or alcoholic solution. I have found, however, that it will bear without appreciable change comparative rough treatment in this way, provided the solution is quite neutral or slightly acidified. A little pure aloin dissolved in distilled water may be evaporated to dryness and heated till it fuses, and then

redissolved in water, and this operation repeated several times, but the aloin undergoes but slight change of color, and will still crystallize on letting the solution stand for an hour or two, or almost immediately on stirring. The transparent yellow varnish left by evaporating solutions of it consists merely of anhydrous aloin; treatment with water restores to it its crystalline state. It is of course already known that if kept in a moist state on a water-bath for some time, the pure substance becomes gradually brown, and assumes the appearance of Socotrine aloes; but this is a comparatively slow process, and even after some time a considerable quantity of the aloin is still capable of crystallizing.

A further illustration of its stability is exhibited in the following experiment and accompanying specimen. About ten years ago, a paper by Kosmann appeared in the *Journal de Pharmacie*, the object of which was to show that aloes was a mixture of glucosidic bodies. The experiments by which grape sugar was obtained, and its presence indicated by the asserted production of alcohol and carbonic acid, were performed by Kosmann solely upon Cape aloes. I have made a number of experiments which convince me that he is quite incorrect in his statements, but as I hope to reproduce the subject at a future meeting, I will cite only one experiment made with pure aloin. Some aloin was dissolved in about an equal weight of oil of vitriol (it forms a clear orange syrup); the solution was gently heated for a few minutes, and then poured into water and kept boiling for about two hours.

Saturated by excess of pure carbonate of barium, filtered and evaporated on a water-bath, a minute quantity of barium retained in solution precipitated by dilute sulphuric acid and the liquid further concentrated, unaltered aloin was deposited in yellow crystals. A part of the solution which had been thus treated was submitted to the fermentation test. Three tubes full of mercury were inverted in a small mercurial trough. Into the first was introduced some washed yeast and distilled water. Into the second some washed yeast and a weak solution of sugar. Into the third some yeast and the boiled solution of aloin. The first and third gave no bubbles of gas larger than a pin's head; the second tube was completely filled with CO_2 in half an hour.

To ascertain if the aloin prevented fermentation, two similar tubes were set up. The first contained yeast, distilled water and sugar; the second had in addition a portion of the solution which had been

boiled and tested as above. Both gave gas in about half an hour nearly equally. A portion of the same sample of yeast was used in all these cases. There is consequently no sugar produced by boiling aloin with acids, and the aloin undergoes practically no change.

The copper test is inapplicable, inasmuch as pure aloin which has undergone no manipulation reduces alkaline copper solution rapidly and freely.*

Aloin gives no apparent change with tartar emetic nor with ferrous salts, but with ferric salts it strikes an olive coloration, which is destroyed by reducing agents.

III. The substance termed *resin*, which abounds in all kinds of aloes, is not very happily so-called, for it is soluble in considerable quantity in hot water. It is said to yield chrysammic acid by treatment with nitric acid, and is therefore related in some way to the soluble part of aloes; but this is a point upon which nothing is known at present.

IV. There can be no doubt that the "aloesic acid," supposed to be present in aloes, has no existence. The reaction with iron salts, ascribed to it is due to the crystallizable aloin, and the acidity to test-paper presented by an infusion of aloes is a property of the half-oxidized substance contained in the uncrystallizable "aloetin."

V. In addition to those bodies, there is in all aloes a small but notable proportion of vegetable albumen. It is left when either kind is exhausted with rectified spirit. Its presence probably promotes the change to which solutions of aloes are always subject.

Pure aloin, then, in pure solutions, is liable only to very tardy alteration. Exposed to the air, it gradually absorbs oxygen, and the solution deepens in color; but the change which is thus slow under such circumstances, is very rapid indeed if a small quantity of any alkali is introduced. The solution then becomes in a few hours of a deep brown color; and after the lapse of three or four days, if the air be admitted, the aloin entirely disappears, and is transformed into a substance, or mixture of substances, which no longer possesses any bitterness, but is perfectly insipid. An experiment was made by dissolving pure aloin in water with an equal weight of carbonate of potassium; the solution, left in an imperfectly closed flask for about a week,

*I have found that many other bodies besides the glucoses do this; amongst others tannin and orcin.

entirely lost its bitter taste. Nitrate of barium was added to remove the carbonate, and the filtered liquid mixed with acetate of lead. The result was a dirty greenish precipitate, which was removed and basic acetate of lead added. This gave a bright orange precipitate, which was collected and analysed. Its composition, compared with that of aloin, is shown by the subjoined numbers :—

Aloin (Stenhouse).	Yellow Precipitate.
C 60·67	C 14·30
H 5·65	H 1·40
O 33·68	O 25·71
<hr/> 100·00	Pb . . 58·59
	<hr/> 100·00

From which it appears that whilst in aloin the carbon stands to the oxygen nearly as 1 to $\frac{1}{2}$, in the oxidized substance it is, roughly speaking, in the proportion of 1 to 2.

Some extract of Socotrine aloes was boiled with carbonate of potash and water, in the proportion directed for the preparation of compound decoction of aloes, the remaining ingredients being omitted. Keeping this solution in the way described, it also became tasteless and gave the same reactions.

Mr. William Young, pharmaceutical chemist, proposed the question which stands in the Conference list, and I am indebted to him for the specimens upon the table, and also for his permission to quote from a letter with which he has favored me.

He says, "For more than ten years I have observed that decoct. aloes co. loses its bitterness on keeping, but I cannot say that it loses its aperient property. I have frequently taken a fluid ounce of various degrees of bitterness, and have always found it produce the desired effect. But this is a matter which does not affect the pharmacist so much as the fact that the public cannot be persuaded that a medicine which is not uniform in taste is rightly prepared. I venture to assert that if a customer were to purchase successively at one establishment four ounces of decoct. aloes co. weekly, and each sample being a week older than the one immediately preceding, no two samples would be alike. Of course if, as I understand is the custom in some large establishments, a large quantity is prepared and kept some weeks before use, a greater uniformity would be arrived at; but that puts the small tradesman at a great disadvantage, who perhaps pre-

pare a pint at the time, and sends it out fresh and intensely bitter. I know an instance of a chemist who nearly lost a valuable customer in the following way. He had been in the habit of dispensing a ℥xij mixture, containing ℥vj vini aloes. When he first prepared it he had a pint of the vin. aloes in stock, which probably had been made five or six years, and had not the slightest taste of aloes in it, but it pleased the patient. At length the stock was exhausted, and the mixture prepared with a fresh supply of vin. aloes recently prepared. The patient could hardly be convinced that a mistake had not been made; and it was found that ℥ss of the recently-prepared vin. aloes imparted more bitterness to the ℥xij mixture than the whole ℥vj of the old. I have tasted samples of dec. aloes comp. concent. 1 to 3, almost devoid of bitterness; and a maker of that article informs me that it is a most unsatisfactory preparation."

The active constituent of aloes is still unknown. That the purgative property is not due to aloin was first shown by Robiquet, and is proved, I think, by the fact of its complete disuse after a very short trial. Mr. Young says that he has not noticed any variation of power in the specimens of different degrees of bitterness which he has tried; but, on the other hand, I have myself taken large doses of the oxidized alkaline solution of aloin, or of extract of aloes, without perceiving the slightest effect.

There is in Dr. Druitt's 'Surgeon's Vade Mecum' a prescription which, I am informed by the author, is the most active form in which any kinds of aloes can be administered. Barbadoes aloes is made into a mass with strong sulphuric acid, and in that state rolled out into pills. Dispensing difficulties may have stood in the way of the more extensive employment of this form, but if it bears out the character attributed to it, it would seem that a half oxidized condition of the aloes is the most advantageous.

The questions which still remain to be solved with reference to aloes are numerous. Amongst others, two very important points seem to me to require examination. These are the nature and properties of the resinoid matter, and the cause of the differences between the several varieties of this important drug known to commerce.—*Pharm. Journ., London, Nov. 5th, 1870.*

Minutes of the Philadelphia College of Pharmacy.

A special meeting of the College was held Dec. 5th, pursuant to a call issued by the President, to receive and act upon the report of the Joint Committee appointed at the last meeting to consider the business interests of the American Journal of Pharmacy.

In the absence of the President, Vice-President Robert Shoemaker in the chair. In the absence of the Secretary, Thomas S. Wiegand was appointed Secretary *pro tempore*.

The call for the meeting, stating its object, having been read, the minutes of the Joint Committee were then read, giving an account of their deliberations and the conclusions at which they had arrived.

It was then resolved—

1st. That the business pertaining to the Journal shall be transacted at the College building.

2d. That the American Journal of Pharmacy be published monthly.

3d. That a business editor be appointed to attend to the advertisements, the distribution and the accounts.

4th. That the Treasurer of the Publishing Committee be authorized to draw on the Treasurer of the College for the prime cost of Journals supplied to members, and for exchanges.

On motion then adjourned.

THOMAS S. WIEGAND, *Secretary pro temp.*

A stated meeting of the College was held December 27, 1870. Dillwyn Parrish, President, presiding.

The minutes of the last meeting and of the special meeting were read and approved.

The minutes of the Board of Trustees were read by the Secretary of the Board.

Wm. Procter, Jr., for Committee on Latin Labels, made a verbal report. After some explanatory remarks from members of the Committee the subject of publishing farther editions of the labels was referred to the Committee, with power to act.

A communication from the Horticultural Society regarding a botanical garden at Fairmount Park, was referred to the Board of Trustees.

The following communication was read:

To the Philadelphia College of Pharmacy:

FELLOW MEMBERS.—It is now thirty-four years since my connection with the American Journal of Pharmacy as a contributor commenced, and about twenty-five years as co editor and editor.

During this period time and labor have been freely given to make the work a continuous record of the progress of Pharmacy at home and abroad. For many years it was a labor of love, and despite the great sacrifice of time occasioned by contributing to its pages, the labor was cheerfully given. Of latter years a change has occurred in this respect: the work has been continued

regularly as a matter of duty, but it has ceased to be a pleasure. Under these circumstances, I desire to carry out an intention entertained for several years, and withdraw from the editorship.

In order to give the College time to select a successor, I have deemed it best to offer this my resignation at this meeting, to take effect at the annual meeting in March, when the stated time for electing an editor arrives.

Meanwhile every effort will be made to introduce the new order of things adopted at the special meeting of the present month, and to start the Journal as a *Monthly* in its three first numbers, hoping that the College will then be ready to release me from further duty.

I need hardly say that it has required some effort on my part to thus voluntarily resign a position fraught with so many pleasant memories, and which has brought me in contact with a large number of professional brethren beyond the pale of our College, yet after deliberate consideration I believe duty to myself requires the step to be taken, not doubting that under the auspices of a new editor the Publishing Committee will be able to report a flourishing condition of the Journal at the end of the coming year.

Respectfully,

WILLIAM PROCTER, JR.

December 27th, 1870.

The resignation of the editor of the Journal gave occasion to expressions of regret at the prospect of losing the able hand which had for so many years guided the first and most widely known exponent of Pharmaceutical science in America; and, while feeling what the loss to the College would be, the members who were acquainted with Mr. Procter's earnest wish to be released from the editorship could not solicit from him a farther continuance of the labors of the office, and while accepting his resignation are unable to express their sense of the services he has rendered—a just estimate can better be found in the twenty-one volumes of the American Journal of Pharmacy which bear his name as editor.

On motion of Robert Shoemaker, the resignation of William Procter, Jr., was then accepted.

On motion of Charles Ellis, the Chair appointed the following Committee to bring forward at the next meeting the name of a suitable person for editor, viz., Charles Ellis, Wm. Procter, Jr., John M. Maisch, Charles Bullock.

Frames for the engraving of Jacob Bell, and of the photograph of Plough Court Laboratory, received from Daniel Hanbury, at the last stated meeting, were presented by Wm. Procter, Jr.

On motion then adjourned.

CHARLES BULLOCK, *Secretary.*

Minutes of the Pharmaceutical Meetings.

The minutes of the two social meetings held in November and December will be presented in our February number, and regularly thereafter during their continuance.—EDITOR.

Editorial Department.

TO OUR READERS.—The present number is the beginning of a new era in the history of this Journal, which hereafter will appear monthly, forming a volume of the same size as heretofore, the text in each number will cover 48 pages, yet by widening and lengthening the page about what is equal to five lines of the old page have been added to each. It will be observed that each page is dated, with the name of the Journal, thus giving the time of publication of every paper printed.

Contributors will much oblige us by sending their copy by the 15th of the month preceding the date of publication, or earlier if convenient. Some of our old contributors have been silent lately. We earnestly invite these and all others to favor us with their investigations and suggestions.

By reference to the Minutes of the College, at page 40, it will be seen that the business management of this Journal will soon be placed in charge of a Special Editor, who will relieve the Editor and Treasurer from labor that did not appertain to their functions. We would also remind our delinquent subscribers that our expenses are increased by recent changes, which should be met by the dues which they fail to send us promptly.

SPIRITUS SALIS DULCIS.—A correspondent in New Haven asks for a formula for *Spiritus Salis Dulciss*, used many years ago. It is a sweet spirit of (common) salt, just as sweet spirit of nitre is of saltpetre. Each was originally made by distilling the respective salts with sulphuric acid and alcohol. This name was officinal in the Edinburgh Pharm. of 1722, and applied to a spirit of hydrochloric ether obtained by distilling a mixture of one part of muriatic acid and three parts of alcohol, after digesting the mixture for several days, and redistilling the product one or more times, until free from acid. This is probably what was used under that name.

In the Prussian Pharm. of 1847 a sort of spirit of chloric ether, under the name *Spiritus Ether Chlorati*, is made by distilling 16 parts of chloride of sodium, 6 parts of binoxide of manganese, 12 parts of sulphuric acid, and 48 parts of stronger alcohol, sp. gr. .813. The acid and alcohol are to be carefully mixed, and poured on the salt and oxide, previously placed in a large retort, and the whole mixed; a well refrigerated receiver being adapted, forty-two parts of distillate are obtained by means of a sand-bath heat. To free the product from acidity it is shaken with about half a part of calcined magnesia till neutral, and then redistilled. Sp. gr. .815 to .820. This product has also been called *Spiritus Salis Dulcis*.

The French use a preparation called *Esprit de sel dulcifié*, which is a simple mixture of 1 part of muriatic acid and 3 parts of alcohol.

EDITORIAL DUTY AND SELECTED MATTER.—The frequent disregard of Journalistic right on the one hand, and the inconvenience of investigating readers on

the other, are proverbial faults of many American medical and perhaps pharmaceutical editors. During the past year a number of articles properly to be accredited to this Journal have been going the rounds under false colors, and translations and abridgements for which we have paid, are taken without acknowledgement.

While on this subject, we would respectfully suggest to editors the great advantage arising from giving the date, or number and volume of journals from which papers of any consequence are extracted, as well as the original authorities, so the reader can consult them, if for any reason it is desirable.

A GENERAL INDEX TO THE AMERICAN JOURNAL OF PHARMACY.—It is with pleasure that we announce that arrangements have been made by the Publishing Committee, with a gentleman qualified for the task, to make a general Index to the entire forty-two volumes of this Journal. Commenced in 1829, and for a long period the only journal of its kind in the country, its pages embrace a large number of valuable papers and a great variety of formulas, to which reference will be made in the Index. As the whole will make a volume of several hundred pages, involving considerable expense in its publication, this will have to be met by subscription. Every person possessing a copy of the Journal needs such an index, and those who do not have the back volumes, by possessing the Index can at once learn whether the work contains what they need before seeking its pages elsewhere. The price of the Index cannot yet be determined, but will be placed as low as its cost will admit; meanwhile the names of subscribers are solicited from all interested, as the Committee will not feel justified in going to press, after the copy is ready, until a sufficient number of subscribers is obtained to justify their proceeding.

THE PHARMACIST.—We learn from the October issue of *The Pharmacist* (which did not arrive until too late for notice in our November number) that a serious loss has been sustained by the destruction by fire of its printer's stock, which occurred on the 4th of September. This misfortune is the more to be regretted as it occurred just as that enterprising journal was getting into good working order. The October and September numbers were somewhat delayed, but Chicago energy will doubtless soon restore its losses, especially if delinquent subscribers will remember the potency of money as a restorative in such misfortunes.

FEMALE PHARMACEUTISTS IN HOLLAND.—According to the editor of the *Pharmaceutische Zeitung*, at the examination for pharmaceutical assistants recently held in Amsterdam, nine female candidates made application, five of whom had been educated there at the industrial school. The Commission of examination was fully satisfied of their capability. The *Pharmaceutical Weekly* of Holland reiterates the views expressed on a former occasion, that these girls (Meisjes) are not adapted for city pharmacies, but that in the country, where the prescription business is naturally limited to certain hours, and where they could find time for improvement in domestic duties, they might become useful and valuable assistants.

MR. DONOVAN, OF DUBLIN. From the *Medical Press and Circular* of Nov. 30th, we learn that this distinguished apothecary, the last of his order, has retired from his profession in comfortable circumstances. Michael Donovan is an Honorary member of the Philadelphia College of Pharmacy, and has written many papers on pharmaceutical subjects. The editor says of him: "Mr. Donovan's name was familiar to the readers and scientific men of the last half century as the associate and colleague of the first Irish Physicians of his day. Pursuing his well considered course, he persistently refused either to lay claim to medical experience, though immeasurably in advance of most general apothecary practitioners in this respect, or to remove one step either side of the path of science to which he had devoted himself. Far seeing and believing in the greatness of his art, he foretold the virtual extinction of the Irish Apothecaries Company, which has arisen from their abandonment of their proper functions, and alone he maintained a silent and life-long protest against the theory and the policy which regards pharmaceutical chemistry as nothing better than drug selling."

Specific Medication and Specific Medicines. By John Scudder, M. D., Prof. of Practice of Medicine in the Eclectic Medical Institute, Cincinnati. Wilstach, Baldwin & Co., Cincinnati. 1870; pp. 253, 12mo.

This book, written by the editor of the *Eclectic Medical Journal*, is a new contribution to the literature of the eclectic practitioners. The author gives, in a preliminary chapter, his views on *specific medication*, specific diagnosis, difference from homœopathy, administration of medicines, the form of medicine, the dose and preparation of remedies, office pharmacy and classification of remedies. Four-fifths of the book is occupied with brief therapeutic notices of a long list of the *Materia Medica*, chiefly, however, indigenous, but not confined to American plants nor to vegetable medicines. Among the "*specific remedies*" the author recommends infusion of honey bees as a diuretic, tincture of cactus grandiflorus in heart disease, collinsonia in ministers' sore throat, gelsemium in affections of the brain and spinal centres, leptandra for the intestinal canal, lobelia in difficult labor, and this he considers a *sedative* between veratrum and aconite. The entire work appears to be Dr. Scudders' opinions and views of the value of the several medicines treated.

Charter, By Laws and Code of Ethics of the Maryland College of Pharmacy. Baltimore, 1870; pp. 14, 8vo.

The new charter of this institution bears date March 23d, 1870, the old charter expiring by limitation on the 27th inst. The new charter empowers the College to grant the degree of Doctor in Pharmacy. The College in constructing these by-laws have adopted the action of the late Educational Convention. LAW X says: "No diploma shall be recognized that is not based upon four years' practical service with some reputable pharmacist." LAW V establishes an educational standard for students, who are required to pass an examination before being admitted to the lectures; and LAW VII requires the student to be 21 years of age before he can receive his diploma. These more stringent rules will raise the status of Pharmacy in Baltimore, and deserve to be generally adopted.

American Journal of Microscopy, devoted to the general dissemination of the knowledge of microscopic science. Chicago, Vol. 1, No. 1. Published monthly by George Mead & Co., 185 Clark st., Chicago. 16 pages, quarto.

The spirited manner in which the initial number is brought out promises well for this pioneer journal of microscopy in this country. The first article is on "the value of the microscope to the pharmacist," by Prof. E. M. Hale, of Chicago, in which the author endeavors to show the need of microscopic scrutiny to detect processes of deterioration set up by fungi in the tissues of organic drugs. As a medium for advocating this important branch of scientific research, this journal will lend valuable aid, and deserves encouragement by all interested. Price one dollar per year, or ten cents per number.

Proceedings of the Second Annual Meeting of the California Pharmaceutical Society, held at San Francisco Oct. 10th, 1870. San Francisco, 1870; pp. 52, octavo.

This pamphlet embodies the several reports made to the Annual Meeting, and the replies to some of the queries propounded at the last Annual Meeting. The Executive Committee's report informs that there are 87 retail drug stores in San Francisco, 48 of which are represented in the Society. The happy influence of the Pacific Railroad, in affording supplies promptly to the drug market, and thus preventing the remarkable variation in prices incident to the ante-railroad era, is alluded to.

The meetings of the Society have been well attended, and a library and museum have been commenced at the new rooms of the Society, at 226 Sutton st. The chapter on Medicinal Plants possesses much interest. Endeavors are being made to establish a garden for the supply of medicinal plants, and the large number of Californian plants in many important natural orders is suggested as a field worthy of culture by the therapist and organic chemist. California mineral waters are attracting attention, and allusion is made to an ingenious double cup for dissolving effervescing powders separately, and then mixing them in the enlarged neck of the vessel before drinking.

The subject of a school of pharmacy has been considered, and in the opinion of the Committee seems possible at no distant period.

The address of the President, Mr. Calvert, and the report of the Secretary, Mr. Steele, are interesting, but our space does not admit of noticing them. The special reports we hope to recur to in a future number.

Archives of Science and Transactions of the Orleans County Society of Natural Sciences. Editors, J. M. Currier, M. D., of Newport, Vt., and George A. Hinman, M. D., West Charleston, Vt. Vol. 1, No. 1, October, 1870. Published quarterly by J. M. Currier, M. D., at Newport, Vt. Price \$2.50 per annum.

This number contains articles on the Pawnee Indians, on Mineral Waters of Essex County, Vt., on the Indian History of Northern Vermont, Meteorological Register from December, 1869, to July, 1870, inclusive, New Mounting for Microscopic Objects, and a Double Maple-tree (*Acer saccharinum*), together with the Constitution and By-Laws of the Society.

The Manufacturer and Builder for November and December.

This valuable handsomely illustrated monthly is duly received, and contains much of interest in great variety in matters pertaining to machinery and architecture. Among the small items is an arrangement for saving life at sea by cutting a few staves from the bilge of a cask so as to admit a man's body, then by two ropes suspend sufficient weight of iron to retain it with the opening up, so as to float safely. After the navigator gets in, a piece of canvas may be drawn around him, so as to keep the water from entering the cask.

The American Practitioner: a monthly Journal of Medicine and Surgery. Edited by David Y. Yandell, M. D., and Theophilus Parvin, M. D., of the University of Louisville. July, 1870. Vol. 2, No. 7; 64 pages.

This is the first number of this well-printed journal that has reached us.

Annual Report of the Surgeon-General, United States Army, 1870.

Memorandum referring to Extracts of Letters, Reviews and Bibliographical Notices of the Publications of the Surgeon-General's Office.

The reception of these pamphlets from Surgeon-General Barnes is acknowledged.

C A T A L O G U E

OF THE

Class of the Philadelphia College of Pharmacy, FOR THE FORTY-NINTH SESSION, 1870-71.

With a List of their Preceptors and Localities.

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THE AMERICAN JOURNAL OF PHARMACY.

FEBRUARY, 1871.

DECOMPOSITION OF ACETATE OF MORPHIA IN SOLUTION.

By JOHN M. MAISCH.

Read before the Philadelphia College of Pharmacy Dec. 20, 1870.

That aqueous solutions of the salts of most officinal alkaloids cannot be kept for indefinite periods is well known to all pharmacists. Whether distilled water, or boiled and filtered hydrant water—the latter containing but traces of foreign matter—be used for such solutions, whitish floccules usually make their appearance after some time, and gradually assume a soft gelatinous consistence, with the appearance of algaceous growth. In the few instances in which the writer assayed such altered solutions of the sulphates of quinia and of morphia, a diminution of the amount of alkaloid has not been observed, and the appearance of this foreign body was therefore rather attributed to accidental organic impurities in the water, and this belief was strengthened by the fact that the bulk of these flocks varies in solutions made at different times, and after some time apparently does not increase, and that the presence of an excess of sulphuric acid prevents such a formation or at least diminishes its amount.

It is also well known that a neutral solution of acetate of ammonia gradually deposits flocks, and that the liquid then assumes an alkaline reaction. This was first observed by Horst,* who attributes this decomposition of aqueous solutions of acetate and succinate of ammonia to the light, and recommends to keep them in a dark place; if ammonia was replaced by potassa or soda, this decomposition did not take place. I am not aware that the amount of ammonia has ever been estimated in the fresh solution and after the decomposition has taken place.

* Archiv d. Pharm. 1823. Buchner's Repertorium, xviii, 481.

A solution of acetate of morphia is very prone to change; it soon acquires a brown yellowish color, and deposits a brown matter. A decomposition was already observed by E. Merck in 1837,* when experimenting about the best process for obtaining this salt dry, in a neutral condition; he states that the evaporation of its solution must be hastened at a low temperature by a current of air or other means, since it is decomposed at too slow an evaporation. But the nature of this decomposition is not stated.

Some months ago, Dr. Wm. T. Taylor, of this city, informed me that he prefers to use a solution of this salt for hypodermic injection, and that he had repeatedly observed the separation in the liquid of one or more crystals, after keeping it on hand for some time. A careful examination of a crystal proved it to be pure morphia, entirely free from acetic or other acid; with nitric and iodic acids, and with sesquichloride of iron, it showed the reactions characteristic for morphia; it had an alkaline reaction to test papers, and neither acetic, carbonic or any mineral acid could be discovered by the appropriate tests; heated upon platinum foil it was consumed without leaving any residue.

The liquid had deposited a considerable quantity of a brown matter, and was of a pale brownish color. It was neutral to test paper, but with pure sesquichloride of iron acquired a reddish tint, which disappeared on the addition of muriatic acid. Acidulated with nitric acid, iodohydrargyrate of potassium occasioned a turbidity. Evidently a minute portion of acetate of morphia remained still in solution.

To the kindness of Dr. Taylor I am indebted for the specimen upon the table, which was originally a solution of 8 grains acetate of morphia in half an ounce of distilled water. By accident, it had been set aside, and was lost sight of for several months. On examining it, the deposit and the change in color of the solution, mentioned before, were observed, and a single crystal reaching from the surface of the liquid diagonally through the solution to the bottom of the vial on the opposite side.

The gradual decomposition of acetic acid in crude vinegar is well known, and it is possible that the changes noticed above are of the same or a similar nature. At any rate it is very evident that acetic

* Archiv d. Ph. xxiv, 46. Buchner's Rept. lxiv, 265.

acid, in contact with organic bodies, is very liable to undergo decomposition, and since an organic body in such a condition is apt to predispose others, with which it may be in direct contact, to similar changes, it is a question of great moment whether the addition of acetic acid to our officinal fluid extracts of ergot and of ipecacuanha may not be more detrimental than useful.

ON THE PRECIPITATION OF QUINIA BY IODIDE OF POTASSIUM FROM ACID SOLUTIONS.

By J. M. MAISCH.

Read before the Philadelphia College of Pharmacy, at the Pharmaceutical Meeting, Dec. 20, 1870.

Some time ago the following prescription was received :

R. Quiniæ Sulphatis,	.	.	.	.	gr. xv.
Potassii Iodidi,	.	.	.	.	ʒi.
Tinct. Ferri Chloridi,	.	.	.	.	ʒi.
Aquæ,	.	.	.	.	ʒiv.
Syrupi Zingib.,	.	.	.	.	ʒi.

M.

The quinia salt was dissolved in the tincture of iron, the potassium iodide in the water, and the solutions mixed ; a brown precipitate was at once formed. The quinia salt was now dissolved in the water with the addition of a little dilute sulphuric acid, the iodide added, and after solution had taken place, the tincture of iron ; the same result was produced.

It was now supposed that the iodide might contain some iodate, that on the addition of an acid, iodine was liberated, which, with the excess of iodide, would form biniodide of potassium, and that the precipitation occurred in consequence of the presence of this compound. But when the solution of the iodide (Atkinson & Biggar's) was acidulated with muriatic acid, a reddish color was not produced, nor would starch paste brought in contact with the liquid acquire a blue color ; iodic acid was therefore not present.

Righini stated (*Journal de Chim. méd.* xiii, 116) that bisulphate of quinia produces with iodide of potassium a red pulverulent precipitate.

A considerable quantity of iodide of potassium was dissolved in a solution of one part of sulphate of quinia in 20 water, the solution of

the latter salt having been effected with just enough dilute sulphuric acid. A white precipitate was the result, doubtless owing to the presence of some quinidia in the quinia salt; for a solution of one part of quinia sulphate in 40 of water, effected with a sufficient quantity of sulphuric acid, remained clear on the addition of iodide of potassium in substance. When a considerable excess of pure sulphuric or muriatic acid was used for dissolving the quinia, the addition of solution of potassium iodide occasioned no turbidity or sediment; therefore the observation of Righini is not correct as far as it relates to neutral potassium iodide.

A solution of sulphate of quinia (1:40) with just sufficient acid was prepared, iodide of potassium added, and then solution of citrate of iron; a white turbidity with the gradual production of a bright red precipitate was the result.

The same quinia solution was made, except that a considerable excess of dilute sulphuric acid was used; after the solution of iodide of potassium had been effected, every drop of the solution of iron citrate occasioned a brownish white precipitate, which rapidly changed through various shades into deep brown. If the order of mixing was reversed, the potassium iodide yielded with dilute sulphuric acid a colorless solution, which became turbid and turned brown with the iron citrate, and now yielded with solution of quinia a darker colored precipitate, changing more readily.

If an aqueous solution, or the tincture of sesquichloride of iron, diluted with water so that the iron color can scarcely be perceived, is mixed with solution of potassium iodide, an iodine color is at once produced, doubtless owing to the formation of ferric iodide: $\text{Fe}_2\text{Cl}_3 + 3\text{KI} = \text{Fe}_2\text{I}_3 + 3\text{KCl}$. But since in a mixture of solutions of different salts the acid and bases interchange in part, provided an insoluble compound be not formed, a mixture of the two solutions must contain Fe_2Cl_3 , Fe_2I_3 , KI and KCl ; the third equivalent of iodine in Fe_2I_3 being but loosely combined, we have in the above mixture practically KI_2 , and obtain with it in quinia solutions the same precipitate which we observe on the addition of Lugol's solution.

The appearance of the red or brown precipitate which, according to Righini, contains quinia, hydriodic acid and iodine, depends therefore on the presence of KI_2 , or if KI be used, on the presence of some other compound producing the former.

The precipitate obtained in putting up the above prescription, after

having been well washed with water, forms a brown powder having a slight odor of iodine, which is slowly evolved. When the precipitate is treated with ammonia, it changes to a dull cinnabar color; dissolved in acids, it yields a copious precipitate with iodohydrargyrate of potassium. Heated upon platinum foil, it decomposes, leaving a bulky charcoal, which is burned with difficulty without leaving any residue behind. The precipitate therefore contains, besides the elements of quinia, only iodine.

ON EMULSION OF ALMONDS.

By H. P. REYNOLDS.

The officinal emulsion of the U. S. P. forms an elegant and suitable vehicle for the administration of many pungent or acrid medicines, but no apothecary cares to spend time for its extempore preparation, and of course it cannot be kept on hand on account of the readiness with which it ferments.

Experimenting recently, by request of a physician, for a satisfactory vehicle for chloral hydrate, I found the emulsion of almonds peculiarly adapted to the purpose, both by reason of its agreeable taste and its thick consistency almost completely obscuring the pungency of the drug. Chloral is now so largely administered in that class of diseases accompanied by an irritated and sensitive condition of the mouth and throat that this seemed a point gained. And it may not be amiss to state here that syrupus acaciæ slightly flavored with orange-flower water and essential oil of almonds is a very agreeable vehicle for the chloral.

Finding I should be called upon to provide the emulsion for this purpose it became desirable to have it on hand in a convenient and permanent form. I therefore contrived a preparation which I call a "Concentrated Emulsion of Almonds," and which is prepared as follows :

R	Sweet Almonds, (blanched)	
	Sugar,	
	Glycerin, ("C. P.")	each one ounce.
	Powd. Gum Arabic,	one drachm.
	Water,	two ounces.

Rub to a uniform paste, strain through muslin and evaporate by a heat *not exceeding* 150° F., to the consistency of a fresh solid extract. Preserve in wide mouth bottles of size for convenient use. It may

be flavored to suit; I have preferred orange flower water and oil of almonds. When emulsion of almonds is prescribed it is readily prepared as follows:

R

Concentrated Emulsion, two drachms.

Water, sufficient to make one ounce of mixture.

Mix thoroughly.

It immediately assumes the milky hue and consistence of the official article, and cannot be distinguished from it, while it keeps without change and without drying. The idea may not be new to all your readers, but certainly is original so far as I am concerned, and I shall be happy if the suggestion proves useful to any of them, as it can hardly fail to do.

Plainfield, N. J., Dec. 28th, 1870.

SYRUPUS CROCI.

To the Editor:

Dear Sir:—For some time past I have been called upon to make considerable quantities of syrup of saffron, and not knowing of a reliable formula, the one I herewith send you for publication presented itself and am happy to state produced the finest preparation of the kind I ever saw. As commonly prepared, it is apt to ferment, and of course is worthless; during the summer months I have found it to ferment with ease. This is entirely obviated by substituting glycerin for sugar, according to the formula I send you. I have some in my store which I made eight months ago and it is as perfect as when first made. In making this syrup I use part glycerin instead of sugar. We all know that the medical properties of saffron are due to the volatile oil, and in order to obtain this we must guard against heat in the preparation of the syrup, and make it cold, as when heat is used it drives off part of the volatile oil. The next point is to use something that will dissolve the vol. oil from the saffron, and for that purpose I have used glycerin, and find it to work admirably.

Take of true Saffron,	.	.	℥ss.
Glycerin,	.	.	℥ij.
Water,	.	.	℥vi.

Let the above macerate for seven days, filter into a pint bottle and add water through the filter q. s. to make ℥viii, then add sugar 14

oz. av. and dissolve cold by frequent agitation. The result is a beautiful thick, dark orange-colored syrup.

I present this to the readers of the Journal. In case they are in want of a formula, they will find this a reliable one.

Yours respectfully,

GEO. W. KENNEDY.

Pottsville, Pa.. Jan. 9th, 1871.

ON QUINIA, AND SOME ANALOGOUS SUBSTANCES IN PRESCRIPTIONS AS TONICS AND EFFICACIOUS ANTIPERIODICS.

BY J. B. R. PURNELL, M.D., of Snowhill, Md.

The object of what follows (a part of which has before appeared in the *Medical and Surgical Reporter*, Oct., 1869,) is not to allude to medicine of agreeable taste any more than to speak of certain combinations as more efficacious antiperiodics than quinia sulphate alone. Nevertheless, a knowledge of means of disguising any disagreeable taste—whenever this is possible without damage to remedial power—is and ought to be admitted as important, a palatable remedy being essential in a great many cases to comfort, in not a few to a cure. And, having noticed several accounts of formulæ intended to conceal the bitterness of quinia, I am induced to make some statements—conclusions which I think can be relied upon, being arrived at by some years of observation and many experiments made with care.

Ext. glycyrrhizæ alone (better with a little tannic acid) answers a good purpose with many patients, but a large proportion is usually required (5 grs. may be used for each grain of quinia sulphate or 2 grains of cinchonia sulphate), and I find the taste of the extract is more often objected to than that of some other things that may be used—hence the importance of a knowledge, if possible, of a variety of substances to be employed to destroy the bitterness.

Tannic acid used in large proportion with quinia sulphate—less for cinchonia sulphate or the alkaloid quinia—conceals the bitterness, and the fact may be well known to the profession generally, or the majority; but it is probably not generally known that a slightly bitter taste of tannate of quinia—more properly a minute portion of precipitated quinine—will be perceived, though not until about a half minute after swallowing the mixture. The same is perceived, to some extent, in the case of any other combination by which the bitterness of quinia or cinchonia is disguised, but is probably more distinct with

.

the tannic acid mixture; to prevent this it is only necessary to rinse the mouth with water, or with cold tea, which is better.

In the first place, however, it is important to know whether the medical properties of a remedy are at all impaired by the substance used to disguise its taste; and there is evidence that there are many practitioners who would be unwilling to depend upon quinia sulphate combined with tannic acid in large proportion as an antiperiodic.

Quinia in the form of tannate in solution (or rather, in mixture) I have used for several years (in over a thousand cases), and believe it to be in no case less, oftentimes more, efficient as an antiperiodic than sulphate of quinia alone.

Without the aid of any other substance eight grains of tannic acid will be required to entirely cover the taste of ten grains of quinia sulphate; it is better, however, to use less and in combination with aromatics unless an astringent be indicated. But the roughness of tannic acid is unpleasant to many persons. To prevent this, add sugar in abundance and a little aromatic. But if sick stomach should be present much sugar cannot be retained or will be refused, (true at least in the majority of cases) and this will be a trouble; and if to the same person the taste of tannic acid should be very unpleasant, there will be another trouble, and the difficulty will be increased. Now in this case, as well as the case of a patient who for any other reason objects both to sweet medicine and tannic acid, if, while employing but little sugar, we use rather less tannic acid and a large instead of a small quantity of aromatic, and dilute the dose sufficiently—though unnecessary to dilute very largely—we will generally succeed. Though in regard to quinia sulphate directly, a small quantity of aromatic, however used, can accomplish nothing, and the effect of a large quantity, when employed alone, is too trivial to make it useful, the same (large quantity) will nevertheless assist much in disguising it, provided a certain proportion of tannic acid be present.

Some persons who sweeten quinine, expecting by this means to somewhat diminish the bitter taste, only add to the trouble, for the bitterness is increased by the addition of sugar without any other substance, or at least is not lessened in the slightest degree, and is caused to be perceived for a much longer time for the reason probably that it imparts an adhesive property to the solution which, consequently, remains longer on the organs of taste and penetrates.

Cinchona, though containing the alkaloids and not usually requiring

tannic acid—a fact readily accounted for from the presence of Cincho-tannic acid—will be sufficiently disguised by the use of sugar, cinnamon and orange. Tr. cinchonæ comp., already containing aurantii cort., will require only sugar and cinnamon. For tr. gentianæ comp. tannic acid and sugar may be used, though the addition of syr. sarsaparilla comp. or ext. sars. fl. co. will greatly improve it, or either of the last two named with an aromatic alone can be employed. A palatable and efficient elixir of cinchona may be found in Parrish's Pharmacy. The following recipes will be adequate to the end proposed:

R	Tr. Cinchonæ Comp.,	.	.	.	f 3v.	
	Tr. Calumbæ,	.	.	.	f 3ij.	
	Spt. Lavandulæ Comp.,	.	.	.		
	Tr. Cinnamomi, aa	.	.	.	f 3ij.	
	Syr. Aurantii,	.	.	.	f 3ss.	
	Ext. Glycyrrhizæ,	.	.	.	3ss.	M.

R	Tr. Gentianæ Comp.,	
	Tr. Cinchon Comp., aa	f 3ss.
	Ac. Tannici,	gr. ij.
	Syr. Sarsaparillæ Co.	f 3i.

M.

R	Tr. Cinchon Co.,	f 3ss.
	Ferri et. Potass. Tart.,	3j.
	Spt. Cinnamomi,	f 3ss.
	Curacao,	f 3ij.
	Sacch. Alb.,	3ij
	Aquæ,	f 3ij.

M.

The fer. et potass. tart. here serves a twofold purpose, since it helps materially to conceal the bitterness. The following formulæ will generally prove efficacious as tonics or antiperiodics, and not impalatable to the majority of persons, and may be varied somewhat according to the case and the taste of the patient.

R	Quinia Sulphatis,	gr. xv.
	Cinchonæ "	gr. x.
	Acidi Tannici,	gr. x.
	Syrupi,	
	Syr. Aurantii Cort., aa	f 3vj.
	Ol Aurantii,	
	Ol Sassafras, aa	gtt. iij.
	Aquæ Cinnamomi	f 3ij.

Misce.

R	Quiniæ Sulph.,	gr. xx.
	Liq. Potassæ arsenitis,	m. xx.
	Acidi Tannici,	gr. xij.
	Syr. Aurantii Cort.	f 3vi.
	Aq. Ment. Pip.	f 3ij.
	M. S. f 3j ter die.	As an antipe-
	riodic f 3ss—f 3ij.	

R	Quiniæ Sulph.	gr. xv.
	Cinchonæ "	gr. viij.
	Ac. Tannic,	gr. v.
	Ext. Sarsapar. Fl. Co.	f 3ij.
	Syr. Sarsapar. Co.	f 3iss.
	Aquæ,	f 3i.

M.

R	Quiniæ Sulph.,	gr. xx.
	Cinchonæ Sulph.,	gr. xv.
	Ac. Tannic,	gr. vi.
	Syr. Sarsapar. Comp.	f 3iiiss.
	Ol Anisi,	m. vi.
	Tr. Cinnamomi,	f 3ij.
	M. S. f 3j ter die.	As an antipe-
	riodic, f 3ss—i.	

To prevent the slightly bitter taste which begins to be perceived about a half minute after swallowing the dose, rinse the mouth with water, or with cold tea, which is better.

Coffee (if a good article) in strong decoction, or prepared by displacement or in powder, while it adds to the antiperiodic effect, disguises the taste of a large proportion of the sulphates of quinia and cinchonia and like bitters, as well as some other remedies, not impairing the medical properties, and though not new it seems not to be generally known. It is, perhaps, generally known to have been much used to conceal the taste of senna and magnesia sulphate, and in regard to quinia, Waring mentions the fact on page 229, *Practical Therapeutics*. He says, "Coffee is of importance as a means of disguising the taste of nauseous medicines, particularly quinine, senna and epsom salts." It is to be remembered, however, that a weak preparation will not do.

R Coffee $\frac{1}{2}$ teacupful, Water Oiss.

Use no milk with it unless a very small quantity only is desired to flavor; with or without sugar according to taste.

In relation to this subject there is an important fact to be borne in mind. The quinia or cinchonia sulphate should be put in the coffee in form of powder. If dissolved first with an acid a decided bitterness will be perceived. So, in the case of anything employed to conceal the taste of quinia sulphate and like bitters, use the bitter in powder, avoiding an acid or (with a few exceptions) any perfect solution.

Cocoa or chocolate, if the quinia sulphate is not in large proportion, conceals the taste to a great extent, provided it be used of a sufficient strength, as in the solid or semi-fluid state. For cinchonia sulphate it will do better, since the taste of this substance is not so difficult to cover.

A decoction—five minutes boiling—of a certain strength (a weak preparation will not answer) of a mixture of green and black teas (I have not succeeded so well with either alone, yet there can be no reason why one will not do,) after standing with the leaves for eight hours, disguises the taste of quinia and cinchonia sulphates, though not in so large proportion as coffee. For this purpose:

R Theæ V. gr. xxv,—Theæ n. gr. xxxiv, Aq. f3iij.

LECTURE EXPERIMENTS.

BY PROF. A. W. HOFMANN.

Translated by Prof. Leeds from the Proceedings of the German Chemical Society,
Berlin, Vol. 111, No. 12.

1. *Inflammation of hydrogen combinations in contact with fuming nitric acid.*

It is known through the investigations of Graham, that phosphuretted hydrogen, which has lost its spontaneous inflammability by contact with sulphur or in any other manner, acquires it again when brought into contact with nitrous acid. Phosphuretted hydrogen bubbles inflame, if a glass-rod moistened with hot fuming nitric acid be held over the surface of water out of which they are rising. When some drops of warm fuming nitric acid are poured into a cylinder of phosphuretted hydrogen gas, which does not ignite spontaneously, an extremely powerful and not altogether safe detonation takes place.

Sulphuretted and seleniuretted hydrogen are decomposed in the same manner by fuming nitric acid with the phenomena of ignition. But if the sulphuretted hydrogen contains a considerable quantity of free hydrogen, the combustion does not take place. It is well then in this experiment to prepare the sulphuretted hydrogen from native sulphide of antimony and not from sulphide of iron.

This phenomenon is most strikingly exhibited by hydriodic acid gas. When some cubic centimetres of moderately warm fuming nitric acid are poured into a rather large cylinder of hydriodic acid gas, immediately a great red flame bursts forth, which is enveloped in a violet cloud of iodine vapors. At the same time the inside of the cylinder is coated with a network of steel-gray crystals of iodine.

2. *Observation of complementary colors in looking upon a body with transmitted and with reflected light.*

Many colored substances, as is well known, show in reflected light the color which is complementary to that which they exhibit in transmitted light. This phenomenon is particularly beautiful in the case of the aniline colors, especially in the aniline green which is usually termed iodine green. Every one is familiar with the deep purplish red which the salts of rose aniline, when in solution, show by transmitted light. He less frequently has the opportunity of observing the magnificent cantharides green which the faces of large crystals reflect.

When a concentrated solution of iodine green in alcohol is evaporated in a glass evaporating dish in the air or, better, upon a water bath, the dish becomes coated with a homogeneous, quite transparent varnish, which shows in transmitted light a magnificent green color; in reflected light, on the other hand, a most highly characteristic, and, particularly after rubbing, a very decided red copper color.

When a part of the dish is gently warmed, the green changes into violet, since the di-iodmethyle of the trimethyl rose aniline is converted with liberation of iodmethyl into monoiodmethyle. Moreover, where the dish in transmitted lights appears of a beautiful violet, it shows now in reflected light a pure yellow brazen color.

While green and red on the one hand, and on the other blue and yellow may be taken in general as complementary colors, yet Prof. Dove has experimentally demonstrated in the above mentioned cases that the tints observed in the aniline dyes by transmitted and reflected light when combined produce white light.

The green and red colors, which the salts of rose aniline exhibit in reflected and transmitted light respectively, correspond to the complementary colors of a selenite plate of $\frac{1}{4}$ difference (Gangunterschied) looked at in polarized light through a doubly refracting prism as analyser.

The soft green color of iodine green in transmitted light, and the copper red, which this dye affords in reflected light, agree with the colors of a selenite plate of $\frac{9}{4}$ difference.

Finally the bluish violet color of the methylviolet arising from the iodine green by warming, and the brass color, which this substance reflects, are exactly comparable to none of the complementary colors which are given by the selenite plates in the rich collection of Prof. Dove. The colors occurring in the case of the last mentioned aniline dye lie in the middle between those observed in the observation of selenite plates of $\frac{3}{4}$ and those of $\frac{1}{4}$ difference.

3. *Tinctorial power of certain aniline dyes.*

The solution of a salt of rosaniline (since we are speaking here of very dilute solutions, it matters not which salt is employed) is diluted with water containing some drops of acetic acid, until it contains one part of dye to one million parts water (one milligramme to one litre water.) It possesses still a deep carmine red. A skein of silk moistened with dilute acetic acid is colored by this solution of a beautiful red in an instant. When the proportion of water is increased to 25

million parts ($\frac{1}{25}$ milligramme in a litre) the red color is still very plain, and silk immersed in the solution is colored light red in the space of a quarter of an hour. If the dilution is still further continued, it is shown that in case the proportion be 1 part dye to 100 million parts water ($\frac{1}{100}$ mgr. in a litre) the limit is attained to which the coloration is perceptible. Thin layers of this solution appear in fact quite colorless, and it is necessary to look through thicker layers (of about $\frac{1}{2}$ metre) or to observe the surface of the solution half in transmitted half in reflected light, in order clearly to recognize the tint. It is interesting to hang a thread of silk in a volume, not too small, of this almost colorless solution. After 24 hours the thread appears quite plainly and more deeply colored than the solution. In the light of this phenomenon we cannot doubt that in the bosom of the apparently tranquil solution there are currents, in consequence of which the colored water-molecules one after another pass over the thread at rest. The observations here made point to a vibratory movement of the molecules, such as philosophers are compelled to accept as a conclusion after proceeding upon different courses of reasoning.

If instead of the salt of rose aniline we experiment with one of its numerous derivatives, we observe a power of coloration quite similar. The experiment was tried particularly with aethyl-violet and with iodine green. In both cases the tint was perceptible up to a dilution of 100 million parts, and both solutions fixed upon silk after a long time a weak but perceptible color. Both of the last mentioned dyes are less suitable for this determination of limit to tinctorial power than the salts of rose aniline, since violet and green in the dilute condition lie near the colors, which are observed in looking through notable layers of pure water.

4. *Formation of nitric acid by the combustion of hydrogen in the air.*

It is well known that in the explosion of a mixture of hydrogen and air in the eudiometer, traces of oxides of nitrogen are always formed, and that merely by the burning of hydrogen in the air a little nitrogen is always oxidised. Lately I have observed this phenomenon under circumstances which make their communication perhaps not without value.

In case of a popular lecture the experiment of the formation of water should be performed on quite a large scale. To this end the two gases are brought together in a glass balloon of 10 litres capa-

city. The balloon is provided at both sides with tubulures through which glass tubes, ending in platinum tips, are carried. The water which is formed flows out of the neck of the balloon. In an experiment in which the air in the balloon had not been replaced by hydrogen, and the hydrogen had burnt for some moments in the oxygen circulating about it, and the first drops of water had run down into the flask placed to receive it, I was astonished to see the vessel filled with red vapors, the quantity of which increased when the corks which fastened the glass tubes in the lateral tubulures were momentarily closed. The smallest drops of the water running out reddened litmus paper; the solution plainly tasted sour, and gave with sulphuric acid and sulphate of iron the reaction of nitric acid.

In a trial, in which 30 grms. of water had formed within thirty minutes, the fluid was saturated with ammonia, and the solution was evaporated in a large watch-glass upon the water-bath. After cooling, an abundant crystallization of the characteristic needles of nitrate of ammonia made its appearance.

Finally it may be remarked that the apparatus which is here described illustrates exquisitely the process of formation of the water.

5. *Fluid Cyanogen.*

Cyanogen belongs to the easily liquefiable gases. At 20° four, and at 0° only $1\frac{1}{2}$ atmospheres are necessary, in order to condense the cyanogen gas. At -21° the cyanogen at the usual atmospheric pressure is fluid, and in the neighborhood of the point of solidification of mercury it is solid. The phenomena of liquefaction is as easily observed in the case of cyanogen as it is in that of sulphurous acid.

Hitherto in lectures, when it was desired to show that cyanogen is liquefiable, the experiment has been performed either in a Faraday's tube, or in the well known compression apparatus of Magnus. The cyanogen is easily obtained in the fluid condition by both methods. But the quantity that is condensed is always very limited, and scarcely visible at considerable distances. Moreover the experiment loses much from the circumstance that the cyanogen cannot be allowed to stream out in the atmosphere, so that it can be recognized by its properties, its flame for example.

The ease with which condensed sulphurous acid can be preserved in vessels provided with glass cocks, gave the inducement to condense large quantities of cyanogen in strong glass tubes, to the mouth of which a Geissler's glass stop-cock was fused. It shortly became

evident that a glass cock was not necessary for this purpose, since it sufficed to connect a brass cock in the ordinary manner to a glass tube.

The mode of experiment which was finally adopted as the most convenient, is the following :

Upon an ordinary combustion tube of about 30 centimetres length, fused together at one end, a brass socket, into which a brass cock can be screwed, is fastened with sealing wax. In order to remove the air from the apparatus a thin delivery tube is passed through the open cock to the bottom, and a stream of cyanogen conducted in, until the gas which issues out of the opening exhibits a pure cyanogen flame. The delivery tube is then removed and the cock closed.

Two strong litre flasks, which are provided at the bottom with tubulures, serve as the apparatus for condensation. The two flasks are connected by an india rubber tube of $1\frac{1}{2}$ meters length, which is sewed into a covering of linen. One flask is placed somewhat higher than the other, in such a way that when the one which is the lowest is filled to the neck with quicksilver, the mercury streams through the lateral tubulure into the flask which stands above. Into the neck of the flask which is filled with mercury a glass tube bent twice at right angles is fastened by means of a good cork, that is secured moreover by wire. This tube is then connected to a cyanogen apparatus. The latter is best made of a difficultly fusible tube, which is provided with a bulb for the reception of mercury. It is slowly heated in a combustion furnace. In proportion as the higher flask is lowered and the mercury flows out, the flask which held the mercury is filled with cyanogen.

After these preliminaries the condensation tube is placed for a quarter of an hour in a good freezing mixture (ice and common salt, to which some chloride of calcium has been added,) that has a temperature of -25° . The cyanogen apparatus is then removed, and the end of the exit tube is connected with the orifice of the condensation tube, the latter always remaining in the freezing mixture. This is easily done by means of a stout india-rubber tube, which is fastened moreover by means of cord. It is now necessary only to raise the lower flask and allow the mercury to flow into the one that is filled with cyanogen. As soon as the level of the mercury has reached the neck of the flask, the cock is closed and the tube is taken out of the ice.

Under the circumstances mentioned five centimeters of fluid cyanogen are obtained. On the opening of the cock the gas streams out with great violence. But the large peach-colored flame soon diminishes in consequence of the cooling of the liquid. This refrigeration is also shown by the coating of ice upon the exterior of the tube.

The condensed cyanogen remains unchanged for weeks.

6. *Alternate reduction and oxidation.*

Whoever is accustomed to heat the oxide of copper for combustions in a copper crucible over a gas flame, has undoubtedly observed the beautiful phenomena, which, in rapid alternation, take place upon the metallic surface. Ignited in the quiet flame, the under portion of the crucible exhibits the full copper color; but when a gentle draft of air draws the flame upon one side, it rushes through all the colors of the rainbow and is blackened in a moment. As soon as it is enveloped in the reducing flame it acquires its primitive metallic lustre.

The thought suggested itself that herein lay the germ of an experiment appropriate to the lecture-table. After many trials the following form has appeared best adapted to the end in view:

An iron ring is placed upon a triangle, in the middle of which a small brightly polished copper bell is placed. A powerful gas-burner, the flame of which touches the inside of the bell, quickly brings the metal to a glow. After some moments it is blackened. A strong stream of hydrogen is led by means of an india-rubber tube into a glass funnel, which is just of the proper size to cover the bell. At the moment when the hydrogen comes into contact with the metal, the oxidised crust is removed and the copper acquires again its primitive metallic lustre. If the funnel with its atmosphere of hydrogen be now removed, the incoming air immediately produces oxidation, the progress of which can be noted by the succession of the colors. When the bell is at glow-heat the phenomena of oxidation and reduction can be repeated ad libitum.

I was at first fearful that the superposition and removal of the hydrogen funnel might cause detonations, but I have never noticed the slightest disturbance.

The hydrogen which is employed in these experiments must be pure. The presence of sulphuretted or arseniuretted hydrogen alters the surface of the copper. The combinations thus formed are not decomposed by water, and the copper does not acquire again its beautiful metallic lustre until it is rubbed off with sandpaper.

ON A MORPHOMETRIC PROCESS FOR THE PHARMACOPŒIA.

BY WILLIAM PROCTER, JR.

The question, "What is the best process for assaying opium to determine its morphia strength, suited for adoption into the United States Pharmacopœia?" was accepted by the writer at the Chicago meeting.

Reflection on the query suggests that it is not so much what is the best analytical process, as to decide what process is best suited for practical use by druggists and pharmacutists in determining the morphia value of opium for the purposes of the Pharmacopœia. Those who take the view that the process should embody the nicest and most refined manipulations of the analytical laboratory, may not accept this view, but when it is understood that a large majority of the persons needing its use are not analytical chemists, it is believed that simplicity, united to a fair degree of accuracy, is more available than extreme accuracy, beyond the reach of most apothecaries, applied in a complex process.

So many able chemists have published processes, some of which are well known in connection with their names, as Staples' process, Mohr's, Guillermond's, &c., that the ground would appear to be well examined. The process of Staples is that of the United States Pharmacopœia. Its point is in the employment of alcohol to retain the coloring matter in solution during the precipitation of the morphia, and in mixing the ammoniacal precipitant also with alcohol. The process of Mohr avails itself of the selective power of boiling lime-water to reject narcotina, and retain morphia in solution. Both of these processes extract the opium with cold water. Guillermond's process employs alcohol of 71 per cent. to extract the opium, which is then precipitated by ammonia. The precipitate, as in Staples' process, contains narcotina.

One difficulty in extracting the portion of opium soluble in water is the caoutchoucoid matter which tends to resist its solvent action. The idea of employing benzine or light coal oil to remove this, as well as the free narcotina, has been suggested by Albert E. Ebert for another purpose, and has been used by Dr. Flückiger in his examination of opium. It is believed that the preliminary use of this solvent in opium assays may be usefully adopted.

Believing that the best way to arrive at a solution of the query was

to try several processes with the same solution of opium, a sample of nearly dry opium, weighing 300 grains, was triturated to coarse powder, and then rubbed with repeated portions of water, until finely divided and macerated in six times its weight of water for twelve hours, then percolated on a filter until the washings were nearly colorless. The united liquids (amounting to 4500 grains) were divided into three equal portions, each representing 100 grains of opium.

No. 1. The solution was evaporated with moderate heat to half a fluid ounce, mixed with an equal bulk of alcohol (sp. gr. 835), filtered through a small filter, and the latter washed with a little diluted alcohol. 50 minims of solution of ammonia (sp. gr. 960) was mixed with 2 fluid drachms of alcohol. One-half of this was added to the alcoholic solution of opium with agitation, and allowed to stand six hours, when the remainder of the ammonia was mixed in and the vessel permitted to rest for twenty-four hours. The crystalline matter deposited on the interior of the vial being detached, the contents were at intervals poured on a small-tared filter, and the crude morphia washed, first with diluted alcohol and then with water, dried at 120° , and weighed. The product was 9.75 grains. This was treated several times with boiling non-alcoholic ether, and the ethereal solution evaporated in a small-tared capsule gave 0.31 grains of crystalline prisms, equivalent to 0.31 per cent. of narcotina, and 9.44 per cent. of morphia in the opium examined.

No. 2. This portion was treated with solution of subacetate of lead till it ceased to be precipitated, the precipitate separated on a filter and well washed, the filtrate treated with diluted sulphuric acid by drops to separate the excess of lead as sulphate, and filtered. The clear solution by moderate heat is reduced to half a fluid ounce, mixed with its bulk of alcohol filtered, and the filtrate mixed with fifty grains of solution of ammonia containing alcohol, in two portions added half an hour apart, and allowed to stand twenty-four hours. The morphia was deposited in large distinct crystals, very few of which were attached to the interior of the vessel. They were collected on a filter, washed with diluted alcohol and water, dried and weighed 8.75 grains. This, repeatedly boiled in ether and the ethereal liquids evaporated, afforded but a trace of crystalline matter, too small to weigh and yet distinctly visible in minute prisms.

No. 3. This was mixed with sixty grains of lime, previously hydrated and boiled for fifteen minutes, the decoction filtered hot from

the dregs, and these well washed with hot water. The filtrate slightly acidulated with muriatic acid was evaporated to half a fluid ounce, mixed with its bulk of alcohol and filtered; an excess of alcoholic ammonia was added and mixed, and the vessel set aside for twenty-four hours. The colored crystalline powder and the portion attached as a crust to the interior, were carefully collected on a filter, washed, dried and weighed, affording ten grains of impure morphia, more colored than either of the other results.

The use of alcohol in this process is intended to retain the coloring matter, yet did not succeed in producing a light-colored morphia.

The last result, according to Mohr, should contain no narcotina, yet when boiled to exhaustion in ether deprived of alcohol, the ethereal liquid afforded 0.75 grain of narcotina, making the result of morphia 9.25 per cent., and narcotina 0.75 per cent.

It will appear, by a comparison of these results, that the Staples process, whilst less complicated than either of the others, yields a purer product than the Mohr process, and a slightly larger yield of morphia; whilst the process No. 2, which is suggested by the writer, affords the purest and best crystallized morphia, but is more complicated than either of the others. Hence, it is the first, or Staples' process, that is to be preferred, modified by treating the powdered opium with warm benzine as a preliminary operation. The final success is greatly aided by conducting the evaporation of the liquor at a moderate temperature, which renders the product less contaminated with coloring matter. By reducing the bulk before precipitation to the extent noted above, the precipitation of the morphia is facilitated, whilst the crystals are equally light colored. By using benzine beforehand the extraction of the opium will be more thoroughly accomplished.--*Proc. Amer. Pharm. Assoc.*, 1870.

THE PURGATIVE ACTION OF ALOES.

BY T. AND H. SMITH.

In the 19th number of the *Pharmaceutical Journal*, there is published the report of a paper read by Mr. William Tilden, B. Sc., before the British Pharmaceutical Conference at Liverpool, entitled "A few Notes on Aloes."* In this paper Mr. Tilden gives some very valuable

* See page 34 *Amer. Journ. Pharm.*, Jan. 1870.

information concerning the chemical properties of the drug, and we have much pleasure in bearing testimony to the ability of his researches, but, at the same time, we feel called upon to notice one or two points in his paper, on which we conceive his deductions to be erroneous.

He states that the active constituent of aloes is still unknown; that Robiquet first showed that the purgative property was not due to aloin; and he asserts that this latter substance is in complete disuse.

On these points we entertain entirely diverse opinions, and as the discoverers, and as far as we know the only manufacturers of aloin, we claim to some little knowledge of its chemical and therapeutical properties.

Mr. Tilden enumerates and describes four substances said to be present in aloes of the best quality, viz. :—

- (1.) Aloetin, aloesin, amorphous aloin, bitter principle of aloes.
- (2.) Crystallized aloin.
- (3.) Resin.
- (4.) Aloesic acid.

Of these four Mr. Tilden disbelieves in the existence of one, viz. aloesic acid, and adduces a reason why (3) resin should be related to the soluble portion of aloes. Of aloetin he remarks that it is very important as to quality, and there can be no doubt it is the product of the alteration of crystallized aloin. He regards it as a mixture of crystallized aloin, capable of recovering its crystalline condition in presence of water, and brown oxidized matter. We have many and various reasons for at present coinciding to some extent with Mr. Tilden in these remarks, but we are entirely at a loss to imagine to what substance he could attribute the purgative action of aloes, since he denies that aloin has any such effect, and yet concludes that aloes absolutely consists of that substance and products of its decomposition.

It is well known that the medicinal powers of aloes are not equal in different samples; that of two samples of the same variety, one may possess twice the purgative action of the other, and that when the varieties are different, the difference in medicinal value is in many cases even more marked.

The idea of an active principle is generally tenaciously associated with something such as strychnia or aconitia, of infinite power in small doses; but there are very many active principles, it must be re-

membered, the powers of which are not very many times greater than those of the drugs from which they are obtained, and in this present case, taking Mr. Tilden's results, he could not possibly expect that aloin would have more than five times the power of good aloes, inasmuch as he obtains more than 20 per cent. of the principle from the drug.

If it be admitted that aloin is the active purgative principle of aloes, one manifest advantage from using it would be that we have therein a medicine of unvarying strength, and we possess what we judge to be conclusive evidence that there is no other substance of value in aloes, and that in all cases where aloes of best quality will produce purgation, a proportionate dose of aloin will be of equal and more certain effect.

When Robiquet, in 1856, published his research on Aloetin,* he denied that that substance (which he seems to have supposed identical with aloin) had any purgative effect. At the time we contemplated publishing a denial of this, but the late Sir James Simpson happening to visit our works, we mentioned our intention to him, when he dissuaded us, observing that medical men were quite sufficiently convinced of the power of aloin, and that he frequently prescribed it and often took it himself, and with unvarying good effect. We could name very many other medical men, of undoubted eminence, who constantly prescribe it in preference to aloes, finding that it has in no case any ill effect, and that there is never any need to give an increased dose when its use is regular and long continued. Our own personal experience bear out these statements, and our commercial transactions give most emphatic testimony that the demand is not decreasing. Since its first discovery, our manufacture has increased from a few pounds to many thousand ounces yearly, and, although we have not arrived at Mr. Tilden's gratifying result of 20 per cent., yet, by recent improvements in our manufacture, we shall be able to produce it at about two-thirds its present price, and we find the dose requisite to be aloin to aloes, as 1 is to 5. We should be happy to forward that gentleman a few doses for purpose of trial, should he wish it.—*Pharm. Journ., London, Nov. 19th, 1870.*

Edinburgh, November 12th, 1870.

* *Journal de Pharmacie*, tome xxix.

THE HONEY TRADE OF THE UNITED STATES, DOMESTIC AND FOREIGN.

BY B. F. STACY, Charlestown, Mass.

This article, which twenty-five years ago formed quite an insignificant article of trade in this country, is rapidly increasing year after year in domestic production; whilst the amount imported is growing smaller. While less is used for pharmaceutical purposes, it nevertheless is rapidly increasing in domestic use. It is also used largely by confectioners, and is an ingredient of many of the fancy beers which have recently become in vogue. Some dealers maintain that the honey which is the product of a cold climate is vastly superior to that of warmer latitudes, which seems almost a contradiction to nature, as Southern lands teem with flowers far excelling as a base of supplies to the bees. One sample that the writer saw from Canada excelled all others in whiteness, clearness and density. Samples from New York, Minnesota, Vermont and New Hampshire, ranked next in order. The only way to obtain pure honey is to buy it in the comb, as nearly all the strained honey sold in the market bears unmistakable evidence of adulteration; this is, however, so well known and so easily discovered that it is unnecessary for me to dwell on it, and as the adulteration is mostly sugar and occasionally a little starch, to give it a whitish appearance, it is at least *harmless*; would that all the adulterations now in use were equally so. Out of ten samples purchased of different dealers, eight of them gave plain evidence of having been tampered with, the remaining two being samples from Cuba, right from the custom-house.

"In 1860 the total product of honey of the United States, reported, was 23,366,357 pounds." "New York stood at the head of the list, with 2,369,751 pounds, followed in order by North Carolina, 2,055,969 pounds; Kentucky, 1,768,692 pounds; Missouri, 1,585,983 pounds; Tennessee, 1,519,390 pounds; Ohio, 1,459,601 pounds; Virginia, 1,431,591 pounds; Pennsylvania, 1,402,128 pounds; Illinois, 1,346,803 pounds, and Indiana, 1,224,489 pounds; all other States falling below 1,000,000 pounds." "Since the census of 1860 the statistics obtained have been partial and fragmentary; the statistics of Massachusetts for 1865 showed an increase of 26 per cent., and that of Iowa for same year an increase of 22 per cent. over the figures of 1860." "In the winter of 1868-69 the Department of

Agriculture sent out circulars to known apiarians in most of the states, and received returns from 489 counties in 32 states. The aggregate number of hives reported was 722,385." "Estimating for counties not reporting, and making due allowance for the fact that many of the counties reporting were giving special attention to bee culture, 2,000,000 of hives were deemed as low a figure as the returns would warrant. Allowing fifteen pounds of surplus honey to the hive (about two-thirds of the average reported), the total product in 1868 would be 30,000,000 pounds, which at an average valuation of 22½ cents per pound, would give \$6,750,000." "In 1868 the quantity of honey imported was 212,176 gallons; value, \$117,172; of which 90,452 gallons, value \$50,569, were re-exported. A very small quantity of domestic honey was exported the same year. These figures show conclusively that an immense trade in honey has been built up in this country and is constantly increasing, which will eventually supersede all necessity of the importation of any from the West Indies." A small township in Minnesota reports 262 hives; from these hives 2826 pounds of surplus honey was taken in the season of 1869." When we consider that the cost of production is merely nominal, it will be seen that it pays to keep bees.

The writer respectfully acknowledges his indebtedness to the Commission of Agriculture, for the statistical information.—*Proc. Amer. Pharm. Assoc.*, 1870.

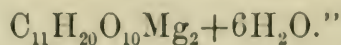
REMARKS ON RICININ.

By RICHARD V. TUSON, F.C.S.,

Professor of Chemistry in the Royal Veterinary College.

Among the "Chemical Notices from Foreign Sources" which appeared in the *Chemical News* of the 21st of October last, will be found an extract from an article entitled "On Ricinine and the Active Principles of Ricinus Seeds," published in the *Pharmaceutische Zeitschrift für Russland*, No. 1, 1870. This extract contained the following statement:—"As regards the ricinine of Dr. Tuson, prepared by the author (Dr. E. Werner) in large quantity, and according to Dr. Tuson's directions, it is stated that ricinine is not an alkaloid, and, moreover, a substance which contains a considerable quantity of ash; and the author, after carefully made analyses, comes to the con-

clusion that Dr. Tuson's ricinine is a compound of magnesia and of an organic acid, the formula of this body being—



That the bodies obtained by Dr. Werner and myself from castor seeds are totally different, I hope to render evident in the present communication.

I have in my possession two small specimens of ricinine; one was prepared from the so-called castor-cake obtained from India, the other from castor-cake obtained from Italy. These specimens possess the undermentioned properties :—

1. Cautiously heated on a glass plate they melt and form a colorless mobile liquid, which, on cooling, solidifies into a whorl of acicular crystals.

2. Heated between two watch-glasses they sublime, apparently without decomposition.

3. Strongly heated on platinum foil, they first melt, then burn with a highly luminous flame, and *leave no ash*.

4. Heated with solid potassium hydrate, they evolve ammonia, proving that they *contain nitrogen*.

5. On estimating the amount of nitrogen by Pélégot's method, the specimen of ricinine procured from Indian castor-cake contained 20·79 per cent., while that from Italian cake contained 20·39 per cent.

6. A solution of ricinine in hydrochloric acid mixed with one of platinum chloride yields, on evaporation, well defined orange octahedra.

7. Cold saturated aqueous solutions of ricinine and mercuric chloride, if mixed together and allowed to stand, deposit fasciculi of acicular crystals.

A comparison of the foregoing epitomised account of ricinine with the description of the magnesium compound obtained by Dr. Werner from ricinus seeds, therefore clearly indicates that the two bodies are entirely different.

That ricinine is entitled to the appellation of alkaloid I hope yet to demonstrate by its complete investigation so soon as I shall become possessed of a large supply of castor-cake, now, I believe, on its way from Calcutta.—*Chem. News, London, Nov. 11, 1870.*

INDIGENOUS DRUGS.

BY C. LEWIS DIEHL.

To write an article upon a subject that has not been completely investigated is, perhaps, the most unsatisfactory task imaginable, and this appears to be allotted to me in the present paper. When I accepted query 23, for 1868, I had no idea of the difficulties to be encountered in its proper solution. Apart from those of a purely personal character, I have met with the greatest difficulties in obtaining answers to inquiries from parties who could, if inclined, have given the desired information. Yet some little information has been obtained, which, however meagre, I propose to give in the following :

My sources of information are various. In some few instances I have received responses from those directly or indirectly engaged in the collection of indigenous drugs ; but generally I have been obliged to depend upon that obtainable from wholesale dealers, to whom consignments had been made by parties doing business with them.

It is a remarkable fact, that our Louisville wholesale druggists depend upon the New York markets for their supplies of indigenous drugs, many of which abound and frequently are collected in our immediate neighborhood. Our retail dealers are supplied with limited quantities by several gatherers living among the range of hills in the neighborhood of New Albany, Ind., known as "the Knobs." Formerly there was a lively trade in indigenous drugs in New Albany ; but such is not now the case, and the drugs gathered in its neighborhood find their markets no farther than our city. Our immediate neighborhood, on the Kentucky side, also contributes to our supplies through a few small gatherers, chiefly Germans ; but taken altogether, our home supplies far from meet the demand of our retail trade, and generally bring better prices than those obtained from a distance. The drugs principally collected in our neighborhood—of which the largest part among the Knobs near New Albany—are : *Podophyllum*, *Leptandra*, *Caulophyllum*, *Lobelia*, *Cimicifuga*, *Gelsemium*, *Ulmus*, *Stillingia*, *Xanthoxylum*, *Phytolacca*, *Asarum Canadensis*, *Cornus Florida*, *Panax*, *Aralia nudicaulis*, *Aralia racemosa*, *Sambucus*, *Cataria*, *Mentha piperita*, *Hedeoma*, &c., and limited quantities of *Serpentaria*, *Spigelia*, and *Senega*. These abound also, and are collected in the counties of Shelby, Monroe, Brown and Morgan ; and

one of our principal establishments has lately negotiated for a full line of indigenous drugs from Pembroke, Kentucky.

My information seems to indicate that the mountainous regions of Kentucky, especially Eastern Kentucky, contributes largely to the supplies of our Western dealers in indigenous drugs. From East Tennessee and Western Georgia large quantities may be and undoubtedly are obtained. Several years ago I had offers from a party in Chattanooga of quite a line of indigenous drugs. Where they find their market I am unable to say, but incline to the belief that the principal collections reach New York by way of Savannah, Ga. In many of the Southern States this branch of trade appears to attract considerable attention since the war, mainly in mountainous and swampy sections. In the neighborhood of Walhalla, South Carolina, quite a brisk industry has sprung up, and large shipments are made from there to New York, through the agency of Charleston firms. The drugs collected there may be enumerated in the following:

Panax, *Senega*, *Cypripedium*, *Liatris spicata*, *Spigelia*, *Sanguinaria*, *Aralia nudicaulis*, *Aralia racemosa*, *Asclepias Syriaca*, *Asclepias tuberosa*, *Rumex*, *Podophyllum*, *Hepatica*, *Rhus*, *Rubus villosus*, *Cimicifuga*, *Marrubium*, *Stillingia*, *Spiraea ulmaria*, *Aletris*, *Convallaria polygonatum*, *Tussilago farfara*, *Phytolacca*, *Ulmus*, *Good-gera pubescens*, *Frasera Carolinensis*, *Arum*, *Solidago Odora*, &c.

Occasionally, consignments of *Senega*, *Serpentaria*, and *Spigelia* reach our markets from Arkansas direct. Several years ago I purchased several bales of *Senega* and *Spigelia*, consigned to one of our wholesale houses from Ozark, Arkansas. It proved to be a poor investment, as the interior of the bales consisted largely of stems, and had to be garbled. The drug-gatherers of the Southern States being generally small farmers and negroes, make no regular profession of it, and only collect as their time permits. Hence the difference in the yield of these drugs between one year and another. They are disposed of by them to the nearest country storekeeper, who on his part consigns them to the wholesale dealer with whom he may happen to do business. I am told by reliable informants that the drugs collected in the Red River districts seldom reach our markets except by way of New Orleans and New York, and that when they do reach us direct, they are generally inferior in quality. One of our principal wholesale drug-houses buys its supplies of indigenous drugs exclusively from a New York firm, and nearly all of the others depend

upon the same firm when they cannot obtain bargains nearer home. When first making inquiries regarding the collection of indigenous drugs, I met with the invariable response, "*Inquire in New York.*"

Regarding the method of collecting and preparing the drugs for market, I can give you but little direct information. I have before me a circular addressed to drug-gatherers by one of our principal Western dealers in indigenous drugs, from which I extract the following:

"Most medicinal roots are perennial (that is, the roots continue more than two years, whether the leaves continue or not), and should be gathered any time between maturity or decay of the leaves or flowers, in the summer or fall, and the vegetating of the succeeding spring. Biennial roots, or those that live but two years (like burdock and yellow dock), should be collected of the growth of one year—any time between September and the time they commence running up to seed in the following spring.

"Barks should be gathered as soon after they will peel in the spring as possible, and all the moss carefully removed. It is usually best to fell the tree and remove the moss while the bark is on the tree.

"Leaves and herbs should be collected just before they mature, and before they begin to fade; the stems and stalks rejected, as when dry they are a hard woody substance, nearly inert.

"Flowers when they first open; and

"Seeds just before they are quite ripe, as they, like leaves and flowers, ripen after being gathered.

"Roots should be thoroughly cleansed from dirt and foreign substances, and if large, like Indian turnip, &c., sliced.

"All the above articles should be dried; the sooner the better. For the first few days it is best to expose them to the sun and air, avoiding any dew or dampness; then spread around on floor and shelves, watching them to see that they do not heat by being piled too thick, till nearly dry. Most roots require from three to six weeks to dry sufficiently to be safe.

"For shipping, it is best to pack them hard in coffee-sacks or large gunnies and burlaps; the next best is good flour barrels."

These circulars appear to be distributed with great circumspection among herb-gatherers and country stores throughout the Southern and Western States, and in all probability serve as a guide to the gatherers. The few gatherers with whom I have been able to converse

personally, proved very slow to give information, but from their conversation I judge that they preserve their collections on the general principles above specified.

It is a matter of sincere regret with me that I have been unable to do more than the foregoing towards the solution of Query 23, for 1868; but I feel sufficient interest in the question not to let it rest where it now stands, and shall do all in my power to give a better answer at the next meeting of the Association.—*Proc. Amer. Pharm. Assoc.*, 1870.

ON THE INFLUENCE OF CARBONATE OF AMMONIA UPON SULPHATE OF STRONTIA AND SULPHATE OF BARYTA.

BY J. REINSCH.

Equivalent quantities of carbonate of ammonia and sulphate of strontia (cœlestin) with the requisite quantity of water, were put into a flask and set aside at ordinary temperature; in a short time small bubbles of gas were observed and a fine white powder deposited upon the bluish cœlestin. The mixture in another flask, prepared in like manner with carbonate of ammonia and sulphate of baryta (heavy spar) likewise evolved gas, and the liquid became turbid. After standing for eight days at ordinary temperature, the contents of both flasks were digested at a temperature of 60° C. (140° F.), when carbonic acid gas was copiously evolved, which from the strontia mixture had a peculiar odor of horse-radish.

After the cœlestin had been entirely converted into a white powder, the liquid, now almost free from odor, was filtered off and proved to be a solution of sulphate of ammonia, while the insoluble portion consisted of carbonate of strontia with a little silica and alumina. The sulphate of baryta had been converted into a much softer snow-white powder of the same composition, and the liquid was free from sulphuric acid. Though carbonate of baryta seems to have been formed, this was instantly reconverted into sulphate.

The author recommends this method of separating, for analytical purposes, the alkaline earths by converting them into sulphates and digesting these compounds with carbonate of ammonia, when lime and strontia, having been converted into carbonates, may be obtained in solution by dilute acids, while sulphate of baryta is left behind.—*N. Jahrb. f. Pharm.*, 1870, July 11-13.

J. M. M.

ON GLYCYRRHIZIN.

By JOSEPH M. HIRSH, of Chicago.

What is the easiest and most practicable method of isolating glycyrrhizin ; to what extent does it possess the power of masking bitterness ; and what is its mode of action ?

The mode of preparing glycyrrhizin, mentioned in the last Dispensatory, of precipitating the same from a cold infusion, I found highly impractical, on account of the slight solubility of the same in cold water. Berzelius's method of preparing it from sulphate of glycyrrhizin gave but a dark-colored product, difficult to purify, while Vogel's method of preparing a plumbate of glycyrrhizin, and subsequent decomposition with hydric sulphuret, is rather laborious. The best practical process appeared to be the preparation from an infusion made with *boiling* water of acetate of glycyrrhizin, which upon evaporation to dryness is dissolved in alcohol, when the acetic acid is neutralized with soda, the new salt crystallizing out, while the glycyrrhizin remains in solution. Another method, giving good results, I found to be the preparation of an alcoholic extract by percolation, which I heated to the boiling-point, filtered off from the deposit produced, when I evaporated nearly to dryness, redissolved in alcohol, from which solution it remained behind almost pure upon evaporation.

Experimenting with this product in regard to its relation to masking bitterness, I found one part to cover up the bitter taste of four parts of Epsom salts, a slight addition of the latter being plainly perceptible, although by no means as disagreeable as when tasted alone. Of an alcoholic extract of coffee, an amount representing twenty parts of coffee, lost its bitter taste upon the addition of the glycyrrhizin. A number of other experiments of similar kind were made, but your reporter respectfully expresses his doubts about the *mathematical* reliability of results, arrived at by taste alone, and confines, therefore, his remarks to the *modus operandi* of the glycyrrhizin.

Taste being an effect upon the nerves of sensation (of taste), the change of taste can be produced either by a chemical change of a substance, or by a peculiar local affection of the nerves of taste. The first case, as might have been anticipated, with Epsom salts, does not occur, the glycyrrhizin not affecting the sulphate of magnesia in any way.

The second supposition then lay near, namely, that the nerves were rendered insensible to the bitter taste. This might be done by an

organic change of nerve-matter, or by the interposition of a foreign body between the nerves and the bitter substance. To ascertain the former lay beyond the facility of your reporter, and I made, therefore, the best of the last supposition, which seems to give a true solution of the problem. When glycyrrhizin or liquorice dissolves upon the tongue, the latter soon becomes furred, coated, this coat being a coagulum of the albumen of the saliva with the glycyrrhizin. A few tests convinced me that even a weak solution of albumen coagulates readily with glycyrrhizin, and I took the artificial coating of the nerves produced by the albuminous coagulum of glycyrrhizin to be the true cause of its masking bitterness. If this was true, other substances, which readily coagulate albumen, should produce the same result.

With this idea I tried a solution of carbolic acid with various bitter substances, and in each case the bitterness was annihilated if the quantity of carbolic solution was sufficient. But while glycyrrhizin and its compounds are sweet, this is not the case with carbolic acid, the taste of which replaced that of the bitter substance with which it was mixed, this taste being in itself not agreeable. To remedy this evil carbolate of glycerin was tried with marked success. Epsom salts, coffee, absinthe, &c., lost their bitter taste when mixed with a sufficiency of carbolic glycerin.—*Proc. Amer. Pharm. Assoc.*, 1870.

SUMBULUS MOSCHATUS.

Inspector Lungershausen of Moscow, reports in No. 27 of *Wochenschr. f. Gärtnerei und Pflanzenkunde*, that the hitherto unknown plant yielding musk, or sumbul root, is now in bloom in the botanical garden at Moscow. When the Russians occupied Bucharia, the plant was discovered and several roots were sent to Moscow, of which but one arrived in good condition. This new umbelliferous plant it was hoped would produce fruit and thus be propagated in Europe. The root has been used in Russia with considerable success in Asiatic cholera.

Professor C. Koch regards the plant as a very interesting one, on account of the strong musk odor of its root, and because the musk deer lives in the same regions. The root has been known for about thirty-five years, without, however, sustaining the high reputation it has gained in Russia, so that it belongs already to the obsolete remedies. It is now mainly employed in perfumery in place of the high

priced musk. There may, possibly, be two musk roots, both indigenous to Central Asia, one being exported through Russia, the other from the East Indies.

The musk root contains about 9 per cent. of a soft oleoresin, obtainable by ether, which in contact with water has the odor of musk. It contains a peculiar acid, sumbulic acid, which appears to differ from angelic acid and from umbelliferon. It has been long known that the root belongs to an umbelliferous plant; flowers and fruits have sometimes been found with it. The latter differing from those of other umbelliferæ, were made the type of a new genus, and the plant was named *Sumbulus moschatus*.—Hager's *Ph. Centralhalle* 1870, No. 39, 367, 368.

J. M. M.

ON THE ARTIFICIAL PREPARATION OF MANNITE.

BY JOSEPH M. HIRSH, of Chicago.

QUERY 8.—The relation of mannite to glucose in composition is very close. Can mannite be prepared artificially? and if so, how? And has it the same physiological properties?

The preparation of artificial mannite, attempted at the instance of this honorable body, has been but a partial success, in so far as I could not in every instance obtain a product of exactly the same composition from the raw material, commercial glucose. Trials with pure grape-sugar invariably failed, in my hands, to produce that peculiar nauseous principle characteristic of manna.

For the sake of brevity, I shall mention the outlines of my experiments in this direction.

I made glucose in the usual manner from starch, leaving about ten per cent. of dextrine in the same undecomposed, but did not concentrate the glucose more than to 15° Beaumé. To this solution I added five per cent. of wheat flour, five of molasses, and as much of common malt vinegar, when the mass was at a temperature of 100° F. In twenty-four hours a lively fermentation had set in, which continued for three days, when I concentrated the liquid, which then showed the peculiar nauseous taste and odor of manna. Digested with alcohol, mannite dissolved, crystallizing upon evaporation of the alcohol, while dextrine and other impurities remained behind undissolved.

The peculiar nauseous principle appears to be partly decomposed matter, undergoing a gradual change into humus. Whoever has been

in a vinegar factory, badly conducted, where poor ventilation produces an incomplete oxidation of the alcohol, but rather decay, must at once be struck by the resemblance of this odor to that of manna. It was this experience which induced my experiments in the manner mentioned above, the gluten of the wheat flour forming, together with the vinegar, an excellent ferment of putridity, which not only produces the nauseous, humus-like parts existing in manna, but also the molecular change of cane and grape-sugar, which converts it into mannite.

This artificial manna, in its action as a laxative, equals the true manna, and very likely the presence of a substance in a state of change, the active principle, is the same in both the true and the artificial manna. The mannite produced in this manner does not reduce alkaline cupric tartrate, showing the complete change of the glucose; but your reporter would beg leave to complete his researches, viz., on the elementary analysis of the artificial product, which pressure of business has prevented him from completing.

An accompanying sample of the manna produced will show how far my attempts have been successful.—*Proc. Amer. Pharm. Assoc.*, 1870.

ON SOLUTION OF GUAIAAC RESIN FOR MEDICINAL USE.

By JAMES T. SHINN, of Philadelphia.

QUERY 7.—What is the best and most eligible liquid form for the preparation and administration of guaiac resin?

There are two officinal liquid preparations of guaiac, the tincture, and ammoniated tincture, both of which are perfect solutions of the drug, but are very disagreeable in taste when given alone, or even when diluted with four or five parts of water. The great desideratum is to find a menstruum which is a good solvent, readily miscible with water, and palatable; and although unsuccessful in this attempt, I will give some results of the experiments made.

Alcohol dissolves all the resinous portions of commercial guaiac, leaving from 20 to 25 per cent. of impurities, chiefly chips of the wood and sand, and the purified guaiac obtained by evaporating the alcohol from this solution is readily dissolved by its weight of that fluid. The officinal tincture (three ounces to a pint), will bear an equal volume of water or syrup and remain clear, and is miscible in any proportion with glycerin and liquor potassæ without producing turbidity.

Thinking a reduction in the amount of spirit might be an advantage, the following formula was tried :

Take of Purified Guaiac,	.	.	.	℥ij.
Alcohol,	.	.	.	f℥ij.
Solution of Potassa,	.	.	.	f℥ij.
Glycerin,	.	.	.	f℥xj.

Dissolve the guaiac in the alcohol, and add the solution of potassa and glycerin.

This forms a clear and permanent solution, of pleasanter taste than the tincture when given alone, but when mixed with water producing about the same turbidity, and leaving the same acrid taste in the fauces. Glycerin does not mask this acidity as well as sugar, but the substitution of part syrup produced a precipitate of the resin.

Decidedly the most agreeable manner of administering guaiac in liquid form, so far as tried, is that of a syrup prepared as follows :

Take of Guaiac,	.	.	.	℥j.
Solution of Potassa,	.	.	.	f℥ss.
Sugar,	.	.	.	℥xiv.
Water, sufficient.				

Macerate the guaiac in the solution of potassa mixed with f℥ij of water for two or three days ; then percolate with water till eight fluid ounces of liquid are obtained, in which dissolve the sugar.

This syrup is quite pleasant to the taste, and can be taken alone or mixed with water ; it has been prescribed for several years by Dr. Ludlow, of Philadelphia, with decided benefit in cases of rheumatism, and can be given for a long period without exciting disgust.

The quantity of solution of potassa may be doubled without rendering the syrup unpalatable, and thus would increase the amount of guaiac dissolved.—*Proc. Amer. Pharm. Assoc.*, 1870.

TEST FOR CHLORIC ACID.

By M. R. BËTTGER.

Three years ago, M. Braun described an extremely delicate test for nitrates and nitric acid ; it depended upon the intense red coloration produced by these bodies upon sulphate of aniline dissolved in sulphuric acid. M. Bœttger suggests the same reaction for the detection of chloric acid and the chlorates. The smallest possible trace of a chlorate introduced into the solution of sulphate of aniline in sulphuric acid will develop almost instantaneously a blue color throughout the mass.—*Journ. de Pharmacie et de Chimie*, from *Jour. Ph. Lon.*

SP. ÆTHERIS NITROSI, B. P.

BY ALFRED E. TANNER.

Read at a Meeting of the Liverpool Chemists' Association, Nov. 27, 1870.

The process in the B. P. is the one usually known as Redwood's; it consists in distilling a mixture of rectified spirit, nitric and sulphuric acids, together with copper wire, at a certain temperature, in a glass retort, furnished with a thermometer; and in operating on the Pharmacopœial quantity, 15 fluid ounces are ordered to be drawn over, and this distillate is to be mixed with 40 fluid ounces of rectified spirit, or a sufficiency, so that the mixture may correspond to the tests for sp. gr. and percentage of $C_2H_5NO_2$, this latter being determined by means of a saturated solution of Ca Cl.

Now I have followed this process for the preparation of spiritus ætheris nitrosi ever since the Pharmacopœia was published, but have never succeeded in collecting the amount of distillate there ordered; on no occasion have I been able to produce more than about 11 fluid ounces, excepting by the addition of more nitric acid than the Pharmacopœia allows, and then the product has been too rich in nitrous ether.

I have usually found this 11 fluid ounces of distillate to contain 50 per cent. of $C_2H_5NO_2$; that is, it will show a separation of 42 per cent. when agitated in a graduated tube with double its volume of saturated solution of a Ca Cl; this, then, appears to contain the whole amount of $C_2H_5NO_2$ required, viz., about $5\frac{1}{2}$ fluid ounces, or 36.6 per cent. of the quantity ordered by the Pharmacopœia to be drawn over, and on mixing this with four times its volume of rectified spirit, the mixture corresponds exactly with the spiritus ætheris nitrosi of the Pharmacopœia, showing 10 per cent. of $C_2H_5NO_2$ by the CaCl test, and having a sp. gr. .846.

I should mention that this 11 fluid ounces of distillate was produced within the limit of temperature ordered, viz., 180° , but by increasing the heat to 200° there was no difficulty in distilling about $4\frac{1}{2}$ fluid ounces more, but that appeared to consist principally of spirit; it was not acid when first distilled, but became so in a few days. On the last occasion of preparing sp. æther. nitros., I made a few notes which may, perhaps, be interesting to some.

The quantities operated upon were those mentioned in the B. P.,

viz., sp. vini. rect. Oj. acid nitric 3 fluid ounces, acid sulphuric 2 fluid ounces, and copper wire. These ingredients (with the exception of $\frac{1}{2}$ fluid ounce of the nitric acid which was set aside to be added subsequently), were put into a glass retort, and the mixture distilled at a temperature commencing at 160° and rising to 175° . The nitrous ether began to form at 160° , which is 10 degrees lower than the point indicated in the Pharmacopœia; when the temperature has risen to 175° and about 8 fluid ounces had passed over, the boiling ceased, and no more could be distilled without exceeding the limit of temperature, viz., 180° ; so the contents of the retort were allowed to cool somewhat, and the remaining $\frac{1}{2}$ fluid ounce of nitric acid was added; the distillation was then continued as before and 3 fluid ounces more passed over, making together 11 fluid ounces; a fresh receiver was adapted to the apparatus and the contents of the retort heated to 200° ; the distillate thus produced measured $4\frac{1}{2}$ fluid ounces, and consisted chiefly of spirit; it was nearly neutral to test paper, and had very little flavor of nitrous ether, its sp. gr. was $\cdot 867$. I further distilled the contents of the retort until a temperature of 220° was shown; this produced about 2 fluid ounces more of a liquid, chiefly spirit and water, having a sp. gr. $\cdot 897$; this was also neutral, but had a disagreeable odor. The 11 fluid ounces of distillate above referred to was then examined and found to have a sp. gr. $\cdot 881$, and showed by the CaCl test a separation of 42.5 per cent., thus corresponding to 50.5 per cent. $\text{C}_2\text{H}_5\text{NO}_2$. This agrees tolerably well with the calculated sp. gr. of a mixture of equal parts of rectified spirit ($\cdot 838$) and nitrous ether ($\cdot 900$), which gives $\cdot 870$ as a mean; the difference between these numbers may, I think, be accounted for by the condensation which takes place on mixing.

These considerations, I think, show that there is more spirit used in the first part of the process than is necessary, or what amounts to the same thing, too little nitric acid. I think a proportionate increase of nitric acid should be used, and the distillate tested as to the amount of $\text{C}_2\text{H}_5\text{NO}_2$ it contains, and if, as in the case just mentioned, it is found to contain 50 per cent., then 1 volume mixed with 4 volumes of rectified spirit would furnish spiritus ætheris nitrosi of the Pharmacopœia strength.

On the question of keeping this compound I regret having no suggestion to offer. It seems inherent in the nature of nitrous ether, even when pure, to change rapidly, becoming strongly acid after being

kept a few days. Doubtless the keeping properties of sp. nitr. are in direct proportion to its strength in ether. A 5 per cent. solution is, I think, more desirable than the present strength, and it would approach nearer to that usually sent out by the wholesale houses. I have reason to believe it is never sent out of the strength ordered in the B. P.

The only possible remedy to prevent this decomposition that I can conceive may be the introduction of some other substance which will exert a preservative influence over it. I have not made any experiments in this direction, but they are well worthy our attention. Some organic substance, such as C H Cl_3 , might possibly be of use. I see acetic ether recommended in one of the American Journals of pharmacy, but can say nothing of it from experience.

Before concluding, I should like to say a word or two of a practice which I consider highly reprehensible. Most of the wholesale houses, I believe, send out what they term solutio ætheris nitrosi 1 to 7 for the purpose of making sp. æther. nit., and doubtless the confiding pharmacist considers he has got hold of a most convenient article for making this otherwise uncertain preparation. I have even heard of its being used in the proportion of $\bar{5}j$ for every $\bar{3}j$ of spiritus ætheris nitrosi ordered and trusting to the other tinctures ordered in the mixture to make the requisite amount of spirit. I had occasion the other day to examine a sample of this preparation procured from a respectable wholesale house. It was received in a stoppered bottle covered with yellow paper, on the label of which were the words "Solut. ætheris nitros. 1 part added to 7 parts of sp. vini rect. (56 per cent.) forms the sp. ætheris nitrosi of the British Pharmacopœia." Thus, its pretensions were very explicit indeed, informing you of the strength your spirit ought to be, and also exactly defining what the mixture would be when made. Now, as the label contained no special precaution for keeping and storing this solution, I was rather doubtful of its assertions, for a solution of this strength ought to contain 80 per cent. of $\text{C}_2\text{H}_5\text{NO}_2$; and as $\text{C}_2\text{H}_5\text{NO}_2$ boils at about 65°F. , this solution must be very dangerous to store, especially in summer, and unless some special precautions were adopted; but I soon found there were no fears to be entertained on this account. The sp. gr. was found to be $\cdot 857$, and the separation by the CaCl test about 3 per cent., thus corresponding to 11 per cent. of $\text{C}_2\text{H}_5\text{NO}$ instead of 80, or 1 per cent. above the strength of spirit æth. nit. of the B. P. Now,

as this article is usually charged from 5s. to 6s. per lb, you will see how large a price we sometimes pay for our credulity. We ought not to allow ourselves to be imposed upon in this manner. The process of the Pharmacopœia is neither expensive nor difficult, and I strongly advocate making this and other preparations for ourselves, or, when this is not practicable, to subject them to strict examination before taking into stock. I have great suspicions of many of these concentrated preparations, and doubt not that, could they all be examined with the same facility as this one, many would be found very deficient. —*Pharm. Journ., Lond., December, 10th, 1870.*

THE REACTION BETWEEN IODIDE OF POTASSIUM AND SUB-NITRATE OF BISMUTH.

BY W. BATHURST WOODMAN, M. D., AND C. MEYMOTT TIDY, M. B.

An out-patient attending at the London Hospital was taking the bismuth mixture of its Pharmacopœia, when it was thought advisable to add iodide of potassium to the previous prescription. When she came the following time, she appeared much alarmed at a red precipitate in the mixture, which she supposed to be “red lead” purposely put in by some neighbor, the sediment having been almost colorless when she reached home. As no mention is made in the ordinary text-books of *Materia Medica* of the decomposition which takes place, although it is doubtless well known to metallurgists, it occurred to the authors to examine the reaction a little more closely. The change takes place slowly, and appears to consist in the formation of an iodide of bismuth, potassic nitrate remaining in solution. This iodide of bismuth is a dark red substance of cubic form, and seems to be a simple iodide, which is almost insoluble both in water and in excess of potassic iodide. Some of its properties are curious. It is a very insoluble substance; for, in addition to what is mentioned above, we may add that saturated solutions of chloride of ammonium, chloride of sodium, ferrocyanide of potassium, and corrosive sublimate, do not dissolve it in any appreciable proportions. Acetic acid dissolves it slightly, without effervescence. On boiling with liquor potassæ or ammonia, the hydrated oxide of bismuth (H Bi O_4) is produced, which is insoluble in excess of either reagent. On treating this iodide with strong nitric acid, there was active effervescence; fumes of iodide being

given off, a blackish, metallic-looking substance being left, entirely soluble in spirit, which proved to be pure iodine. Acid nitrate of bismuth remained in solution, which was not precipitated by a small quantity of water, or until neutralized. With hydrochloric or sulphuric acid there was no effervescence, but iodine was again precipitated; with the latter some iodic acid was formed. Oxalic acid also decomposed the salt, setting free the iodine; the action being somewhat slower than it was in the case of the minerals acids.

A few trials of it in doses of 5 to 20 grains appear to indicate that it is not an energetic therapeutic agent, which is probably to be ascribed to its comparative insolubility.—*British Medical Journal*.

ON IVA (ACHILLEA MOSCHATA.)

BY DR. A. V. PLANTA-REICHENAU.

The plant is known in Switzerland as forest lady's herb (Wildfräulein-Kraut) and has been used there for centuries as a stomachic tonic, &c.

The author collected the herb before flowering without the root. It was, in the form of a coarse powder, distilled with steam, until volatile oil ceased to come over, and the aqueous decoction evaporated to the consistency of an extract. The herb thus exhausted with water, was dried and extracted with alcohol until it ceased to impart to it a bitter taste; most of the alcohol was distilled off.

Iva Oil. The crude volatile oil is bluish green, of a peculiar, not disagreeable odor, and a taste reminding of peppermint. It commences to boil at 170° C.; the greatest portion distils between 180 and 210° C.; the distillate between 230 and 260° C. is brown, and has the odor of wormwood. A dark brown, soft resin is left behind, which is not bitter, insoluble in absolute alcohol, but readily soluble in ether and oil of turpentine. The rectified oil was of a faint yellowish color, an agreeable refreshing odor, and a warm bitter taste, reminding of peppermint. Its composition is $C_{48}H_{40}O_4$; the author names this ivaol.

Ivaïn. The dark green alcoholic liquid was precipitated by alcoholic solution of acetate of lead; the filtrate was treated with sulphuretted hydrogen and the filtrate evaporated; the residue was washed with acetic acid until the washings were colorless, afterwards with water, until it floats upon it. It was then repeatedly dissolve

in alcohol and evaporated, to remove acetic acid, then treated with animal charcoal and the alcohol evaporated. Ivaïn = $C_{48}H_{42}O_6$ has the consistency of Venice turpentine, is of a yellow color, insoluble in water, and in alcoholic solution has a persistently bitter taste.

Achilleina. The aqueous extract was triturated with alcohol until it ceased to become colored; the alcohol was distilled off and the residue precipitated by water. The precipitate having been washed with water, the aqueous liquid was agitated with plumbic hydrate to remove acids. The filtrate was freed from lead, evaporated and alternately dissolved in absolute alcohol and in water, and evaporated until the achilleina yielded clear solutions with both liquids. Thus prepared, it has an alkaline reaction, is brown red, amorphous, friable, very hygroscopic, readily soluble in water, with more difficulty in absolute alcohol, insoluble in ether; its odor is peculiar, its taste very bitter but not disagreeable. The author isolated also the bitter principle from *Achillea millefolium*, which had been obtained by Zanoa in a not entirely pure state, and found it to be identical with achilleina. Composition = $C_{40}H_{38}N_2O_{30}$. The salts have not been investigated.

Moschatina. The precipitate obtained by water, in the concentrated alcoholic residue, was taken up by absolute alcohol, evaporated to dryness and treated with water until the mass became pulverizable under water. It is of an aromatic bitter taste, little hygroscopic, barely soluble in water, fuses under water upon the water-bath, and separates from its solution in hot water in a pulverulent condition. Composition = $C_{42}H_{27}NO_{14}$.

Achilletin. On boiling achilleina for several days with diluted acids sugar is formed, together with a volatile aromatic principle and probably ammonia, and a dark-brown powder separates which is not bitter, insoluble in water, sparingly in alcohol, and in this solution has an aromatic taste. Composition = $C_{22}H_{17}NO_8$.

The author also obtained stearic acid on cooling the tincture of iva, concentrated by distillation.

The aqueous solution of the ashes contained very little sulphate of lime and magnesia, but considerable alkalies and chlorine. Nitric acid dissolves from the residue carbonates, much lime, also phosphoric acid and little magnesia. The undissolved portion consisted of charcoal and much silica.—*Annalen der Chemie und Pharmacie*, 1870, August, 145—161.

J. M. M.

SULPHUROUS ACID.

The value of sulphurous acid gas as a disinfectant has been established by many and crucial experiments, and is generally admitted. This agent is specially recommended by medical officers of health. There is a want of convenient methods of applying it, and especially of applying it in a limited space and to a definite and measured degree. Mr. John Gamgee has called attention to the convenience of employing it as disengaged from an alcoholic solution. Cold alcohol will, he states, take up three hundred times its bulk of sulphurous acid gas. Where, for example, it is desired to saturate a box of clothing with this gas, it is sufficient to drop a certain quantity of its saturated solution in alcohol into the floor of the box, and a large definite quantity is set free by the evaporation. The suggestion is one of importance, and seems to us worthy of attention. The solution of sulphurous acid in alcohol could easily, and probably with advantage, become a general article of pharmaceutical commerce for medical and sanitary use.—*Pharm. Journ. Lond.*, Dec. 10, 1870, from *British Medical Journal*.

TINTED HONEY.

A specimen of rose-colored honey has been presented by Messrs. Fortnum and Mason to the Food Department of the South Kensington Museum. It is of great beauty and delicacy. The comb is virgin, the wax almost white, the honey limpid, pure and of the color of pale red currant jelly. The secret of its production is not revealed, except that it is the result of artificial feeding. The *Gardeners' Chronicle*, after alluding to the various opinions held as to the change which honey undergoes between the time of its being taken from the nectary and that of its being deposited in the comb, remarks that honey from white clover has a greenish-white hue, that from heather a rich golden yellow, and no doubt other colors might be observed according as certain flowers are in particular abundance. It is even possible that feeding the bees upon currant or raspberry jelly or jam would answer the purpose equally well. But it is clear that this step in the refinement of honey being reached, we shall not stop here. With the help of the chemist, the beekeeper will be able to turn out, in a few weeks, to order, honey of any hue, blue, pea-green, orange, or apricot-colored, or even,—by a little ingenious manipulation of the present system of hives, which will allow of any part of the comb being shut off or made accessible to the bees at pleasure,—a parti-colored honey, arranged in artistic patterns and devices.—*Pharm. Journ.*, *Lond.*, Jan. 7, 1871.

Minutes of the Pharmaceutical Meetings.

The Pharmaceutical meetings were again resumed, after several years' intermission, on the 18th of October, 1870. At the meeting held in the College hall this date, there were present several of their originators. Dr. W. H. Pile acted as Registrar or Secretary until there should be one elected to serve for the ensuing year. A ballot was next ordered, and Clemmons Parrish was elected to fill that position. A vote of thanks was tendered to Dr. Pile for the able manner in which he had filled the position of Registrar, also for the uniform and untiring interest he has always manifested in these meetings of the College.

Dr. Pile presented to the College accurately graduated minim and pint measures of his own making.

It was stated that the object of this meeting was more especially to consider the best mode of conducting our future gatherings, that those participating may derive the fullest benefit from them; that all may have something beside the benefit derived from social interchange of ideas. The Registrar was authorized to publish notice of meetings in the "Public Ledger," also to give a wide circulation to cards of invitation. He was also requested to invite the class now attending lectures in this hall.

The following committee was appointed to furnish a plan for conducting these meetings: Israel J. Graham, Prof. Maisch, and Dr. Pile, to report next month.

Prof. Maisch exhibited a specimen of the so-called African saffron, obtained from Chicago. Upon examination, this proved to be *Carthamus*, much broken and discolored. Also a sample of gum sennaar, a species of *Acacia*, at about two-thirds the price. This gum comes into commerce *via* Trieste, from a port on the Red Sea. Externally it resembles a good quality of true gum Arabic, forms a mucilage which is not so bland as that produced from true gum. This may be distinguished from the *Acacia Vera* by the following characters: A mucilage from true gum with Goulard's Extract produces slight opalescence. A mucilage from gum sennaar filters slowly with milkiness; the addition of aqua ammonia to the filtrate of these, in the case of true gum, in 24 hours a slight opalescence is found, whereas in the filtrate from gum sennaar with ammonia is a gelatinous mass in the same space of time.

At the meeting on November 15th, the order of business was as at meetings generally. The Committee appointed at last meeting reported the following suggestions:

1st. As it is of primary importance that a general interest should be felt or created in the attendance of these meetings, the Committee would recommend that an earnest invitation be extended to the members of the College, and all others who may desire to participate in the proceedings, to produce at each of our meetings either written or oral contributions on subjects pertaining to chemistry or pharmacy, or the commercial relations of drugs. Upon the con

clusion of such communications, the presiding officer of the meeting to call for any remarks that may be elicited by the subject thus introduced.

2d. That there should be appointed annually a Standing Committee, consisting of three members, whose duty it should be to propose subjects for discussion at any of our meetings, whenever there shall be a lack of material voluntarily contributed by members.

3d. That a box or other suitable arrangement be provided for the reception of written queries, anonymous or otherwise, which members may desire to propound, relating to any subject connected with the shop or laboratory; which queries may be taken up for discussion either at the meeting in which they are proposed or at a subsequent meeting.

4th. That this Committee be requested to obtain, from time to time, the services of any who may favor the meeting with lectures suited to the occasion.

These recommendations were adopted in parts and as whole. The Committee appointed for the ensuing year was Charles Bullock, Dr. Pile, and Prof. Maisch.

Dr. Bridges exhibited a specimen of marked glass cut by a new process, in which sand is blown with great force against the glass, certain portions of which is protected by wire of different shape, or by gauze or lace, the figure of which is left on the smooth glass surface, while the meshes are etched by the attrition of the sand. Wherever the sand strikes, the impression made resembles ground glass. This process will probably supersede ground glass in many of its uses.

Dr. Pile exhibited a sample of insoluble gun cotton, made in the form of gun wad, being very explosive.

Dr. Bridges explained the principle of the spectroscope, its discovery, and the wonderful results obtained by its use. Although this species of chemical investigation is but in its infancy, the results so far obtained are marvellous, by which the minutest quantity of a substance is detected by an undeniable and never-failing color. After a very interesting exhibition of spectroscopes by the Prof., assisted by Mr. Bullock, the details of which would occupy too much space, the meeting adjourned.

At the meeting held on December 20th, among other things, Dr. Pile propounded and solved the following problems:

1st. To reduce alcohol of given strength to proof.

2d. To reduce alcohol to any required strength.

3d. To make any required quantity of either of the above.

Answer to Problem 1st.—Ascertain the percentage of the alcohol used, and to every 50 parts, by measure, add water sufficient to make the whole number of parts equal to the percentage. For example, if the alcohol be 85 per cent., then to 50 ounces add water sufficient to make 85 ounces.

Answer to Problem 2d.—To as many parts of the given alcohol as are indicated by the percentage required add sufficient water to make the number of parts of the mixture equal to the percentage of the given alcohol. For example, If it is desired to make an alcohol of 30 per cent. from an alcohol of 95 per cent., take 30 parts of the alcohol, add water sufficient to make 95 parts of the mixture.

NOTE.—In the first example we do not add to the 50 ounces of alcohol 35 ounces of water, but sufficient to make 85 ounces of the mixture. This is owing to the condensation occurring where alcohol and water are mixed.

Answer to Problem 3d.—Make the following proposition: As the percentage of the alcohol given is to that of the alcohol required, so is the quantity desired to the quantity of the alcohol to be taken; and to this quantity of alcohol water sufficient must be added to make up the required quantity. For example, Suppose 80 ounces of alcohol, of 75 per cent., is desired to be made from 95 per cent. alcohol—as $95 : 75 :: 80$. This gives 63.33 ounces of 95 per cent. alcohol to be taken; to this add water sufficient to make 80 ounces.

	Alcohol	=	89.49	per cent. by volume.
Dilute	"	=	46	"
Strong	"	=	94.65	"

Mr. Bullock exhibited a specimen of anhydrous alumina, found in large masses weighing many pounds. Specific gravity, 3.60; next to the diamond, the hardest substance in nature. Surface studded with crystals of sapphire.

Dr. Pile spoke of the following prescription as being the cause of poisoning:

R. Strychnia Murias, gr. iss.
Syrup Ferri Iod., f ʒvj.
" Zingiberis, qs. ft. f ʒiii. M.

Sig. Teaspoonful three times a day.

The question arose as to the cause of poisoning—whether these ingredients were incompatible. On this point, the Dr. said he had compounded the prescription, carefully dissolving the muriate of strychnia, and had kept the compound several months, without any sign of precipitation. It was supposed that in the original mixture the strychnia salt was undissolved, the last dose containing the greater part of the poison, which acted fatally.

Prof. Maisch read a paper "On the Precipitation of Quinia by Iodide of Potassium from an Acid Solution." (See *Am. Journal of Pharmacy* for February, 1871.)

Also a paper entitled "Decomposition of Acetate of Morphia in Solution," which will also be found in *Am. Journal of Pharmacy*. (See page 49 of this number.)

Prof. Bridges made some remarks on the vinegar plant.

Prof. Parrish read a paper (illustrated with diagrams) upon "Petroleum, its Mode of Rectification and Refinement, together with its Commercial History," speaking of the immense use during the last few years, almost superseding other illuminating oils of commerce, and exposing some of the immense frauds practiced during the coal oil rage.

Several specimens of petroleum and its derivatives, in their different stages of refinement, were exhibited. (See *Journal Franklin Institute* for February, 1871.)

Editorial Department.

SPURIOUS QUININE.—The following paper was received too late for insertion among the original matter, and its importance induces us to give it place in the editorial columns rather than delay its publication:

"SULPHATE OF QUININE."

An old Fraud in a dangerous Disguise.

BY CHARLES BULLOCK.

Within the past few days there has been offered in this market a lot of sulphate of quinine (?) said to be five thousand ounces in quantity, purporting to be of the manufacture of Pelletier, Delondre et Levailant, Paris. The bottles containing the drug bear the label, and the cork the seal, of that well-known firm.

An examination of the so-called sulphate of quinine (?) (which was offered at the market value, or thereabout, of quinine) shows that it contains scarcely a trace of quinine, but consists entirely of muriate of cinchonia mixed with small amounts of the other associated alkaloids of the bark.

The first impression was, that old bottles, from which the genuine labels had not been removed, had been used to perpetrate the fraud. A more careful examination, and comparison with a package known to be genuine, leads to the belief that the whole transaction—bottle, label, seal, and circular accompanying each bottle—is a counterfeit. This counterfeit, we are informed, is in the hands of parties in New York.

Language too strong can scarcely be used to condemn the baseness of such a transaction. It is bad enough to appropriate a well-known trade-mark, to obtain a market on the reputation of another; but to counterfeit label, circular, seal and trade-mark, to cover a medicinal article of different character and much less value, with *intent* to deceive, indicates a quality of heart needing but a little more schooling to make a first-class rascal.

In the State of Pennsylvania, we have a law punishing the vendor of meats in a condition unsuited for consumption; but we believe there is no statute law in this State to reach the man who, for the sake of greed, willfully deceives his fellow when struggling against the inroads of disease, by offering to him cinchonine under the counterfeit garb and at the cost of quinine, while the drug bears about the same relation to quinine in medicinal as it does in commercial value.

It is hoped that our New York brethren are better protected by laws bearing on the subject; and if they can discover the perpetrator of this fraud, and obtain for him a diploma insuring to him ten years' sojourn at Sing Sing, the general judgment of the profession will be—"served him right."

It is somewhat amusing to notice in the circular accompanying the spurious quinine, that the method of detecting adulterations, is copied from the original,

and which affords a ready method of *nailing the lie* to every package of the counterfeit—

Viz: "1 gramme of sulphate of quinine, 4 grammes of ether, and 2 grammes of aqua ammonia, should form a clear solution."

Philadelphia, Jan. 26, 1871.

RELATIONS SUBSISTING BETWEEN PHYSICIANS AND APOTHECARIES.—This subject constituted the theme of a paper, read by Dr. J. H. Burge, President of King's County Medical Society, (N. Y.,) before that society and published in the *New York Medical Journal* for Oct., 1870, occupying twelve pages. The paper is too long to copy, and we have not even space to offer an abstract, and therefore call attention to it so that those who have access to that *Journal* may read it. The subject is dispassionately treated, first dwelling on the conduct of physicians towards apothecaries, and then on that of the apothecaries towards physicians.

The main points of complaint by apothecaries are well stated and candidly admitted as just, and their recognition advocated.

Thus:—"For example, may he (the apothecary) not reasonably expect that we should recognize his professional character, and not look upon him simply as a vendor of drugs?

"That we should not steal away his custom by an endeavor to join the apothecary's art to the duties of physician.

"That we should by no careless insinuations lessen the proper confidence which his patrons repose in him.

"That we should write our prescriptions so legibly that there can be no doubt of our intention, and so fully and accurately as to burden him with no responsibilities, except such as properly belong to his office.

"That we should depend upon the fees of our own professional services for emolument, and never seek directly to draw revenue from the apothecary's till.

"Until we are willing to accord these rights and such as they imply, to the pharmacist it will be idle to talk of the other side of the question."

On the other hand, Dr. Burge contends that the physician has as just a right to demand "that his prescriptions should be dispensed by practical druggists and graduates of some legal and reliable college of pharmacy."

That he should in preference encourage those who discourage quackery.

That the evil of prescribing over the counter should be abated.

That the terms of the prescription should be rigidly adhered to, and substitution avoided.

That he has a right to be served with pure medicines.

These are the main points, which are discussed with illustrative examples of the manner in which apothecaries have disregarded them. The difficulty after all is, that in both professions there are men not governed by professional rules; men who are ignorant of their duties; men who are unscrupulous and trench on the rights of others, and hence the mutual complaints that arise. Apothecaries know better than physicians how many in the medical ranks disregard the rights of apothecaries and tempt them to do things in self-de-

fence that are wrong. The only way seems to advance education by legal enactments, to uphold the Pharmacopœia as a guide and standard by legal means, and to encourage professional integrity as the true means of reform.

THE AUTHORITY OF THE PHARMACOPŒIA.—A writer in the *Medical Times* (Philada. Jan. 2d) discusses the question as to how far our Pharmacopœia is a recognized code. What are the causes of its being disregarded, and whether the time is not approaching when the attempt will have to be made to get Congress to intervene in favor of a just and moderate law upholding the Pharmacopœia, which shall compel physicians to use officinal language when they want the preparations of that code, and compel apothecaries to dispense its formulæ when prescribed in officinal language. This will leave ample room for the non-professional prescribers, the homœopathist and the eclectic, as well as for the numerous specialities that will ever be arising outside of the Pharmacopœia among apothecaries. It will then become the interest of physicians to include within the national codex all that is most desirable for their prescriptions, and apothecaries to take so much interest in its revision as to see that it is well done.

THE PROCEEDINGS OF THE ASSOCIATION.—We have received some advanced sheets of this volume through the politeness of Prof. Maisch, with the information that the work will soon be published. The execution of the few pages we have received speaks well for the appearance of the coming volume. Several of the essays appear in this number. Before our next issue it may be received in time for a general notice.

THE BUSINESS EDITOR OF THE AMERICAN JOURNAL OF PHARMACY.—Since our last issue, Mr. Henry H. Wolle has been appointed to the position of business editor for the management of the advertising sheet, the distribution and the accounts of the *American Journal of Pharmacy*. His office is at the Hall of the College, 145 North 10th street, Philadelphia, and all letters relating to the business of the *Journal* should be sent to him at that address. His office hour is from 9 to 10 o'clock daily, and when this is not convenient, subscribers, advertisers, and others having business with Mr. Wolle relating to the *Journal*, should reach him by note. The publishing committee are desirous that all subscribers should be faithfully served, and so far as committing the *Journal* to the mails is concerned, efforts have been made to do them justice. Beyond this the committee is not responsible, but desire to hear of failures when they occur.

As many subscribers are in arrears, they will greatly oblige the Committee by promptly paying their dues to Mr. Wolle, who will receipt for the same on Treasurer's account. When subscribers find their Journals are not properly addressed, they will help the Business Editor by promptly notifying him of the errors, and should bills be rendered for accounts already settled, but not credited, such parties will confer a particular favor on the Business Editor by send-

ing the date of such receipts and the name of the receiver. The Committee hope, in the course of a few months, to get their arrangements perfected to the satisfaction of all concerned.

Circular No. 3. Approved Plans and Specifications for Post Hospitals. Surgeon-General's Office, Washington, Nov. 23, 1870.

Circular No. 4. War Department, Surgeon-General's Office.

A Report on Barracks and Hospitals, with Descriptions of Military Posts. Washington, Dec. 5, 1870. Pages, 494. 4to. With numerous illustrations.

This valuable and exceedingly interesting "Report" from the office of the Surgeon-General has resulted from a series of systematic reports from surgeons located at the various posts, in answer to certain queries relative to the location, buildings, hygienic condition and surrounding influences, the character of the buildings, and generally some historical information, which often swells into notices of much interest.

The local reports are preceded by an introductory notice by Assistant-Surgeon John S. Billings, U.S. A., explanatory of the origin and objects of the work, which, besides presenting the merits and faults of the buildings, water supply, drainage, and other arrangements having a hygienic bearing on the troops, is intended to furnish the medical officers of the Army with reliable information in regard to every post to which they may be called to superintend.

The individual reports vary considerably, and indicate the tendencies of the reporters. Some embrace botanical and zoological notices of the localities, of value, especially in reference to the South and West.

The advantages that must arise from this publication will far outweigh its expense, and reflects credit on the department, as well as on the numerous medical officers who have contributed to its pages.

S. Maw, Son & Thompson's Quarterly Price Current. London, January, 1871. Pages, 104. Quarto.

Has been received.

The Year-Book and Almanac for 1871 of the New York Observer. Pages, 200. Octavo. Sydney E. Morse, Jr., & Co., 37 Park Row, N. York. Price, one dollar.

This useful annual is sent to the pre-paying subscribers of the New York Observer gratuitously. It contains a reprint of the first New York Directory, published in 1786. The amount of information of a statistical character embraced in this year-book is immense.

The Public Ledger Almanac for 1871. George W. Childs, Philadelphia; pp. 56. 12mo. From the proprietor.

This excellent annual, teeming with local and general information, is sent

gratuitously by Mr. Childs to the numerous subscribers of the Public Ledger. He proposes to continue it annually, this being the second year.

The Technologist; especially devoted to Engineering, Manufacturing and Building. January. Issued by the Industrial Publication Company, 176 Broadway, New York. Price, \$2 per annum. Monthly.

Constitution, By-Laws and Code of Ethics of the Louisville College of Pharmacy, with a List of Members, Officers and Board of Trustees. Organized Aug. 16, 1870.

We have already noticed (Sept., 1870) the movement out of which this publication arises, and wish it success.

OBITUARY.

MARSHALL F. RINEHART, late of Troy, Ohio, a second course student at the Philadelphia College of Pharmacy, while spending the holidays at the home of his parents, in Maryland, was attacked with typhoid fever, which, after a short illness, resulted in his death on the 9th ult., in the 24th year of his age.

He was a young man of studious and moral habits, a favorite among his fellow-students, and was respected by all who knew him. At a meeting of the class of the College of Pharmacy held after the announcement of his death, suitable resolutions, expressive of regard for the deceased, were adopted.

ROBERT JOHN FOWLER, pharmacist, of the firm of Harvey Reynolds & Fowler, formerly of Leeds, England, died on the 8th of December, at his residence, 33 Rue Magnan, Paris. Having a tendency to phthisis, about four years ago he removed to Paris, the climate of which city suited him, and engaged in a commission chemical business. He was greatly respected, and leaves a widow and children, who mourn his loss in the beleaguered city.

T. W. GISSING, of Wakefield, England, a pharmacist of some standing, died on the 28th of December, after a short illness, aged 41 years. He was much respected in Wakefield, where he took much interest in local affairs for the advancement of education, art and science. He was the Local Secretary of the Pharmaceutical Society, and had been a candidate for the Council.

THE AMERICAN JOURNAL OF PHARMACY.

MARCH, 1871.

CAN PRACTICAL PHARMACY BE TAUGHT EFFECTIVELY BY LECTURES?

BY WILLIAM PROCTER, JR.

The time has arrived when a definite answer to this question is of serious importance to the Pharmaceutical Institutions of the United States. Slowly the public mind is being educated to the necessity of the pharmaceutical Diploma. One State after another is passing laws compelling qualification, placing impediments in the path of incompetence, and preparing the way for the final triumph of the educated pharmacist. The sparsity of Schools of Pharmacy offers a great obstacle to the universal extension of college education to apothecaries, and renders it doubly important that those who make the sacrifice to come long distances to attend lectures, and graduate, should be enabled to return freighted not only with stores of standard knowledge of the books, and the most expert practice of the shop, but with the latest ideas of the Journals not yet crystallized by pharmacopoeial adoption. In this wise the graduate should become a true missionary in propagating the valuable and the elegant in pharmacy in his practice, by attracting the attention of physicians and the public to the contrast which his dispensing makes with pre-existing imperfection in the neighborhood where he may establish.

All will agree that no amount of tuition by lectures will be equivalent to that which the earnest student receives in the dispensing shop and practical laboratory, under the personal instruction of a well-qualified pharmacist, who takes an interest in his pupil; yet such opportunities are rare.

But the question to be met is in regard to the efficiency of oral teaching, where the teacher addresses himself to a roomful of hearers,

impressing his ideas by such illustrations as will best convey his meaning to the thirsty young minds who come as to a fountain of knowledge to fill their vessels for future use. The depth of the impressions made on the minds of a score of students by the vocal announcement that *steam is a carrier of heat*, based on the property possessed by water of rendering a large quantity of caloric latent in the act of assuming the elastic state, which it relinquishes again on condensation as sensible heat, will vary with their natural capacity and previous training; but if the lecturer at the same time exhibits a flask of water in active ebullition, over a lamp, connected by an elastic tube with a flask of alcohol on the other side of the room, so as to impinge on its exterior surface below and set it to boiling, he gives ocular demonstration of what he has said. In this way all the senses recognizing size, form, color, odor, and even touch, may be called in to aid the voice in teaching.

It is essential that the preliminary lectures on manipulation should be thoroughly demonstrative and well furnished with apparatus, diagrams, models and every instrument pertaining to the shop and laboratory. The next best thing to doing it himself is for the student to see the professor perform an operation, and when important operations can be performed before the class without too serious an expenditure of time, they should be done. But when it is not possible, then much may be gained by showing the manner of using the apparatus, pointing out any difficulties that are apt to arise and how they may be avoided.

Some have questioned the propriety of giving preliminary lectures on manipulation, believing that apparatus and manipulation should be explained *pari passu* with the preparations requiring them; but this is certainly a mistake as regards the leading elementary processes, such as comminution, filtration, the generation and applications of heat, the modes of solution, evaporation, distillation and sublimation, etc. If the teacher has been fortunate in conveying his meaning, these preliminary lectures will have laid the groundwork for his subsequent teaching, so that he can use the verbs percolate, digest, distil, filter, sublime, neutralize, fuse, etc., without fear of being misunderstood.

Teachers differ in their views of classification and arrangement in Pharmacy, as well as in regard to its importance. Some prefer the artificial grouping in classes of similar preparations, as extracts, tinctures, pills, distilled waters, etc., while others prefer a systematic

arrangement, based on a botanical alliance of plants yielding drugs, all the simple preparations of each drug being together. The most simple plan is that of the Pharmacopœia. The most rational, and that which appeals most forcibly to the reflective mind, is that of groups based on the similarity of active principles, the preparations of each drug being together. Thus, the starches, the gums, the saccharine drugs, the acid fruits and their products, the principal vegetable acids, the alkaloids, the neutral principles, the fixed oils, the volatile oils, the astringents, etc.

We hold that the lecturer on Pharmacy should exhibit a fair specimen of each drug the preparations of which he is speaking about, and in important cases deteriorated samples, not to trench on *Materia Medica*, but to serve as a practical text in his remarks upon preparations. He should have the powder of the drug and each of its official preparations when these are at all important. When the drug is much employed in infusion or decoction, these preparations should be at hand, as the infusion of digitalis or the decoction of cinchona, so as to point out their peculiarities. Before speaking of the preparations of a drug, its proximate constitution should always be stated, and when several principles have been isolated for medical use, the mode of preparing these should be first dwelt upon. This acquaints the student with the nature of the principles entering the preparations discussed, and the precautions necessary to insure their solution or to avoid their injury.

Where preparations are liable to deteriorate by age, it is well to have samples for illustration, a point easy to accomplish after several years of experience, and in relation to tinctures, extracts, syrups and the volatile and fixed oils, a valuable museum will soon accumulate, illustrating some curious points in relation to the action of light, oxygen, and eremacausis, together with the influence of insects and cryptogamic vegetation.

It remains to say a few words in regard to the manner of treating the subject experimentally, so as to carry out the ideas above stated. In chemical preparations requiring distillation or involving the condensation of gases, like the ethers, chloroform, oil of wine, water and spirit of ammonia, the dehydration and rectification of alcohol, the preparation of the oils of cloves, copaiba, cubebs and the distilled waters and spirits, all may be shown without difficulty and with safety by suitable preliminary preparation and the help of an assistant in a few

cases. The Pharmacopœia processes for hydrocyanic, valerianic and benzoic acids may be performed by starting the processes before the lecture, without materially wasting the professor's hour.

It is quite possible, by mixing powdered galls with ether and moisture beforehand, to express the liquid tannin, and dessicate it on tin plates before the class in a very few minutes, so as to produce good commercial tannin. There is no difficulty in making collodion cotton, washing and drying it by aid of alcohol, and dissolving it in ether, while describing the process and substances.

The rapid preparation of hydrated sesquioxide of iron, fit for an antidote, should be shown to encourage the student to do it dexterously. The processes for many metallic and other chemical preparations may be partially illustrated, but as a general rule the time of the lecturer is better spent in pointing out any difficulties requiring precautions than in attempting to go further, in all cases when possible speaking from his own knowledge.

The processes for the more important alkaloids may, by exhibiting them at different stages, be well explained to a class, but it involves much time and careful preparation. It is also quite proper to give the demonstrative tests of purity, and of recognition as well, though this is usually the work of the *Materia Medica* professor.

In regard to vegetable drugs, their relation to solvents can be easily demonstrated by percolation, and many of the more important should be the subject of practical experiments to prove that these solvents effectually remove the essential constituents. It is an excellent plan to exhibit as many as possible of the important constituents of drugs, to make the remarks more impressive. This hint especially applies to such drugs as jalap, scammony, rhubarb, cinchona, ipecac, opium, aloes, cantharis, colocynth, hyoscyamus, nux vomica, etc.

In his lectures on preparations like mixtures, pills, liniments, mucilages, suppositories, ointments, etc., the professor will have a wide scope for interesting suggestions and cautions bearing on extemporaneous pharmacy, which should never be lost sight of in every step of the course. As an instance of what we mean, let the subject be gum Arabic in its relation to pharmacy. He might say that it is a lime salt of arabic acid (which he proves by means of oxalate of ammonia,) that it is very soluble in water, and insoluble in alcohol, ether, chloroform, benzin, turpentine, and all the volatile and fixed oils, precipitable by subacetate but not by neutral acetate of lead, and in strong solution

is coagulated by borax and perchloride or sulphate of iron. When an alkaline carbonate is dissolved in clear mucilage, in mixtures, it causes cloudiness and gradually precipitates the lime as carbonate, and when borax or chloride or persulphate of iron are mixed with mucilage it must be dilute to prevent coagulation by these salts. Also when the emollient qualities of mucilage are needed in union with a lead salt, the neutral acetate and not the subacetate should be employed.

Finally, it should be remembered that among the class are always individuals whose opportunities for practice are very limited, and who, by merely seeing a plaster spread, a suppository moulded, or an emulsion made, would be far more permanently benefitted, than if merely told how to do these simple but important operations.

COMPOUND SYRUP OF SQUILLS, SYRUP OF SENEKA AND SYRUP OF IPECACUANHA.

BY J. C. WHARTON.

The tendency of some officinal syrups to ferment is strikingly manifested by the three above named, and, although the present formulæ for their preparation are improvements upon older ones, there are still serious difficulties in following implicitly the directions laid down in the U. S. Dispensatory. As a consequence, there are various inequalities in the resulting syrups, and, as I believe, fermentation is sometimes actually promoted by the tedious and lengthy proceedings required.

It will be sufficient to offer as an instance the compound syrup of squill. As it is not necessary to give the formula in detailed proportions, the reader is referred to the U. S. Dispensatory, where it will be seen that after a percolated tincture of three pints is obtained the directions read: "*Boil this for a few minutes, evaporate it by means of a water-bath to a pint, add six fluidounces of boiling water, and filter. Dissolve the sugar in the filtered liquid, and, having heated the solution to the boiling point, strain it while hot. Then dissolve the tartrate of antimony and potassa in the solution while still hot, and add sufficient boiling water through the strainer to make it measure three pints. Lastly, mix the whole thoroughly together.*"

In following these directions as strictly as possible I have almost invariably found that a large amount of albuminous or "pectin-like" matter was deposited, and in fact this is the stated design of raising

the liquid to the boiling point. Here arises the chief difficulty, in my opinion; at any rate I have found it to be a great one, for, in attempting to remove this deposit by filtration, especially if a considerable quantity of liquid is prepared, the filter is soon clogged by the *gummy* matter, and the liquid filters very slowly. I have known filtration to *cease* towards the close of the operation. In such a case the best that can be done is to provide a new filter and empty the old one into it, expressing it to avoid loss as much as possible. This is tedious and wasteful of the virtues of the drug. On one occasion I prepared a quantity of the tincture, and such was the tardiness of filtration that *several days* were occupied in completing it. Towards the end I noticed a few patches of a mouldy growth that had formed on the surface of the albuminous matter in the filter, and by smelling it perceived that *the liquid was spoiled before the syrup was made*. The failure was suggestive, and I concluded that if a few days were enough to *spoil the liquid* a few hours time might injure it, and, in fact, the *germs of fermentation* might begin to work as soon as the liquid was cold, since the protective agency of alcohol was gone.

Reasoning as above, I resorted to a method of filtration often used when a difficult precipitate is to be removed, namely, rubbing the muddy liquid with magnesia. In this case it acted with the double advantage of mingling its particles with the albuminous matter, thus facilitating filtration and neutralizing any free acid that might be present from incipient fermentation. The result was very satisfactory. Filtration was greatly hastened, and the syrup produced was not muddy looking or translucent, as is generally the case, but was beautifully transparent. It was kept a year without fermenting, though almost daily in use.

I have since tried the same method of filtration with syrup of ipecacuanha and syrup of seneka, with like results.

There is a point that may seem objectionable in using magnesia or its carbonate as above, and it has been duly considered before offering these suggestions. It is this: Magnesia is *alkaline* in its reactions, and as the active principle of seneka is considered to be *acid* (polygalic), it would seem that they are incompatible, but as they are both feeble in their affinities and as filtration proceeds rapidly there is practically no objection to mixing them. There is, it is true, a very slight escape of carbonic acid when the carbonate of magnesia is rubbed with the concentrated liquid, but it may be due to a small

amount of free acid of a different character, and even though a little polygalic acid should be removed by the magnesia the amount is so trivial as to be of no importance, and the objection is more than counterbalanced by the complete removal of the albuminous and pectinous deposit which generate fermentation, and would soon decompose more polygalic acid than the magnesia removes.

I therefore submit the following formulæ, adhering as closely to the U. S. Dispensatory as practicable, and would remark that the use of carbonate of magnesia is sanctioned by that authority in the case of the active principle of ipecacuanha, which the reader will see by referring to the method of preparing *impure emetia*, U. S. D., under the article "Ipecacuanha:"

Syrupus Scillæ Compositus.

Take of Squill, in moderately coarse powder,
 Seneka, in moderately fine powder, each *four troyounces.*
 Tartrate of Antimony and Potassa, *forty-eight grains.*
 Sugar (refined) in coarse powder, *forty-two troyounces.*
 Diluted Alcohol,
 Water, each *a sufficient quantity.*
 Carbonate of Magnesia, *sixty grains.*

Mix the squill and seneka, and, having moistened the mixture with half a pint of diluted alcohol, allow it to stand for an hour. Then transfer it to a conical percolator and pour diluted alcohol upon it until three pints of tincture have passed. Boil this for a few minutes, evaporate it by means of a water-bath to a pint, add six fluidounces of boiling water, rub the liquid with the carbonate of magnesia in a mortar till thoroughly mixed, filter, and add through the filter sufficient warm water to make the filtrate measure twenty-two fluidounces. Dissolve the sugar in the filtered liquid, and, having heated the solution to the boiling point, strain it while hot. Then dissolve the tartrate of antimony and potassa in the solution while still hot, and add sufficient boiling water, through the strainer, to make it measure three pints when cold. Lastly, mix the whole thoroughly together.

Syrupus Senegæ.

Take of Seneka, in moderately fine powder, *four troyounces.*
 Sugar (refined) in coarse powder, *fifteen troyounces.*
 Diluted Alcohol, *two pints.*
 Water, *a sufficient quantity.*
 Carbonate of Magnesia, *thirty grains.*

Moisten the seneka with two fluidounces of the diluted alcohol, then transfer it to a conical percolator and gradually pour upon it the remainder of the diluted alcohol. When the tincture has ceased to pass evaporate it by means of a water-bath, at a temperature not exceeding 160°, to half a pint. Rub it with the carbonate of magnesia in a mortar till thoroughly mixed, filter and add sufficient warm water through the filter to make the filtrate measure half a pint, and, having added the sugar, mix well together, and note accurately the measure of the mixture while cold; then dissolve the sugar with the aid of a gentle heat, strain the solution while hot, add sufficient warm water through the strainer to bring the syrup, when cold, to the previously noted measurement, and mix them thoroughly.

Syrupus Ipecacuanhæ.

(Modified from former editions of the U. S. P.)

Take of Ipecacuanha, in fine powder,	<i>two troyounces.</i>
Diluted Alcohol,	
Water, each	<i>a sufficient quantity.</i>
Sugar (refined) in coarse powder,	<i>twenty-nine troyounces.</i>
Carbonate of Magnesia,	<i>forty-five grains.</i>

Moisten the ipecacuanha with one fluidounce of the diluted alcohol, let it stand for twenty-four hours. Then transfer it to a conical percolator and gradually pour upon it diluted alcohol until one pint of tincture has passed. Evaporate this by means of a water-bath to six fluidounces, add ten fluidounces of warm water, and, having rubbed it thoroughly with the carbonate of magnesia in a mortar, filter, and add sufficient warm water through the filter to make the filtrate measure one pint; then add the sugar, and dissolve it with the aid of a gentle heat, and, having strained the hot syrup, add sufficient warm water, through the strainer, to make it measure two pints when cold.

It will be seen that the chief point of difference between the two first formulæ above given and the U. S. P. requirements is the filtration of the evaporated tinctures through carbonate of magnesia instead of paper only; but I would call the attention of the authors and revisers of both the Pharmacopœia and Dispensatory to the lack of explicit directions in many of the formulæ for syrups, from which I, with many others, have suffered loss and trouble. The difficulty is mainly in the want of full and accurate directions in regard to the various measurements. For example, the closing directions in the

formula for compound syrup of squill read thus: "*Add sufficient boiling water, through the strainer to make it (the hot syrup) measure three pints*" (while hot?) In view of the tartar emetic, the *design* of the formula must be to make the syrup measure three pints when *cold*, but a *fair* interpretation of the *directions* cannot mean that. Now it is plain that three pints of *hot* syrup will not, upon cooling, be three pints of *cold* syrup, admitting that no evaporation takes place in the act; but most commonly a considerable evaporation will take place during the process, and of necessity a crystallization of sugar takes place. The fault is even worse in the formula for syrup of seneka. The directions read: "*Filter, and, having added the sugar, dissolve it with the aid of a gentle heat and strain the solution while hot.*" No account is taken of the loss of liquid in filtering, nor of evaporation in dissolving the sugar. If the directions are followed *precisely*, in such cases, crystallization will *inevitably* take place, even if the amount of sugar prescribed is not a little too great, as I am of opinion it is in the two first of the syrups herein discussed. I believe that in practice *twenty-nine troyounces* would be found to answer as well as *thirty troyounces*, or a proportional reduction of other quantities.

Nashville, Tenn., Jany. 24, 1871.

PRESERVATION OF VACCINE CRUSTS.

BY DAVID STEWART, M. D.

Vaccine lymph may be preserved during all the summer months, in any climate, by the following expedient, which I devised several years since:—Immerse them in mercury, and keep the package in a cool cellar, or ice-house or well. No moisture can reach them, although the package is placed beneath the surface of water in the well, or sunk to the bottom thereof. Moreover, they will be dried more thoroughly when deeply imbedded in water, for manifest reasons, and not only protected from insects, but the peculiar animal, which forms at their expense, (invariably when they are otherwise stored away,) and equals them in size ultimately, will not occur. In 1868, I preserved them thus successfully, in my cellar, from the spring until autumn, by attaching a slice of cork to a thread, which facilitates its removal from a tube vial or "test-tube," when forced down and confined by its own elasticity to the lower extremity; this slice of cork I marked

with the date, &c., and then dropped upon it some melted beeswax, one drop of which is sufficient to attach the crust to one side of the disc of cork which suspends it, clear of the glass at the bottom, under a stratum of mercury which may be subsequently introduced until the tube is filled; but one inch of mercury I prefer, although much less may answer, provided the cork is covered therewith; especially if (by the mouth) the pressure of the atmosphere is partly removed (sucked out) from its surface momentarily, as this is *more* than equivalent to the effect that would otherwise result if even twenty (20) inches of mercury were imposed. In other words, the vaccine is enclosed in a *quasi* Torricellian vacuum; and, moreover, any air on its surface is expanded and escapes above the stratum of mercury. Upon this principle, delicate anatomical preparations may be kept during the summer months in their original perfection, provided eremecausis has not commenced.

Port Penn, Delaware, June 9th, 1870.

TINCTURE OF NUX VOMICA.

BY J. B. MOORE.

The tough and corneous character of *nux vomica*, and the obstacle this offers to the solution of its active constituents, render it one of the most difficult substances in the *Materia Medica* to exhaust with a limited quantity of menstruum. It is, therefore, important that the greatest care be exercised in the preparation of the tincture and all the pharmaceutical preparations of the drug.

The U. S. Pharmacopœia directs *fine* powder, No. 60, to be employed in making the tincture, and gives the following directions for its preparation:—"Mix the powder with a pint of alcohol, and digest for twenty-four hours, in a close vessel, with a gentle heat; then transfer the mixture to a cylindrical percolator, and gradually pour alcohol upon it until two pints of tincture are obtained."

Having, in common with many of my brethren in the profession, had frequent difficulty in thoroughly exhausting the drug and obtaining a satisfactory preparation when complying with the above directions, I was induced about two years ago to institute a series of experiments, with the view of so amending the officinal formula and process that a more uniform and reliable tincture might be made, and, after many experiments with various modes of manipulation,

and with powders of different degrees of fineness, I became convinced that a finer powder than is directed in the officinal formula was necessary to insure the perfect exhaustion of the drug, and that some change in the process was also required. As the result of my efforts, I offer the following modification of the officinal process as affording the most satisfactory results :

R Pulv. Nux Vomica, No. 80, \bar{z} vijj Troy.
 Alcohol, a sufficient quantity.

Mix the powder with one and a half pints of alcohol, and digest for twenty-four hours, in a close vessel, at a temperature of 120° , with occasional agitation ; then strain through muslin with strong expression, and rub the residue through a No. 20 sieve ; then pack it firmly in a glass cylindrical percolator, and gradually pour upon it the expressed liquid, and when it has all been absorbed, continue the percolation with alcohol until two pints of tincture are obtained.

Instead of digesting the drug with only a pint of alcohol, as directed by the Pharmacopœia, I use a pint and a half, as it is desirable to secure the solvent action of as much of the menstruum as is possible during the digestion.

I also direct the mixture to be expressed at the completion of the digestion, as the residue can then be properly packed for percolation. This is of paramount importance to the success of the operation, and is much better than pouring the mixture into the percolator and allowing it to settle and adjust itself, as in the officinal formula, because in doing so the homogeneous condition of the mass is disturbed by the partial separation of the finer and coarser particles.

The residuum should be packed so firmly in the percolator that, when percolation commences, the tincture will not pass at a faster rate than from five to eight drops per minute.

If the above directions are carefully complied with a good and reliable preparation will result. When the process is completed, the dregs in the percolator will be found to be tasteless or nearly so.

The almost insuperable difficulties attending the reduction of nux vomica to a very fine powder, with the facilities afforded by any ordinary retail drug store, forbid the idea of any pharmacist attempting to powder the drug for himself, consequently, nearly all are compelled to rely upon the wholesale market for their supply ; therefore, I think that our wholesale druggists should keep constantly on hand nux vomica in *very fine* powder. I presume it is quite a difficult

matter to reduce it to so fine a state of division, even by the aid of the appliances of the best arranged drug powdering establishments, yet, by proper treatment, it can be done.

At the time I was engaged with my experiments I found it impossible to obtain any powdered *nux vomica* in this market that even came up to the requirements of the Pharmacopœia, and to procure the very fine (No. 80) powder I desired, I was obliged to send to Dr. Squibb, in Brooklyn.

There was but one or two of our wholesale drug houses that had any powder finer than from No. 30 to No. 40. Now, as pharmacists have to depend almost exclusively upon the commercial powder to prepare their tincture from, this would seem to indicate that it is nearly all made from powder entirely too coarse, and must necessarily often be of very deficient strength. To this cause may be attributed the frequent failure of physicians in deriving the desired therapeutic effects from the administration of the tincture. It is not uncommon to hear medical men remark that they have lost confidence in the virtues of tincture of *nux vomica*, and many have ceased to employ it in their practice. But I believe that if it be carefully and properly prepared it is as efficient and reliable a preparation of the drug as any that is made.

Phila., Pa., Feb., 1871.

ON THE DIGESTIVE POWER OF COMMERCIAL PEPSINS.

BY J. S. HAWLEY, M. D.

To the Editor of the American Journal of Pharmacy:

In a recent number of your Journal an article appeared, by E. Scheffer, of Louisville, Ky., which not only impeaches my veracity, but is likely to do me serious harm pecuniarily.

This article contains an account of an experiment to test the digestive power of several varieties of pepsin, among others one made by the author of the article and one made by myself.

Of Mr. Scheffer's pepsin I have no knowledge, and am not disposed at present to question his statements concerning it. But in respect to the other varieties, I have made frequent tests of their strength, some of which I have published. To vindicate the truth of my statements I have performed a digestive test, following the method pursued by Mr. Scheffer, and will thank you to do me the justice to give

it a place in your Journal. In doing this, I wish it to be understood that no unfavorable reflections are intended towards Mr. Scheffer. On the contrary, his article bears intrinsic evidence of candor and scientific accuracy. It is my belief that he unfortunately procured a damaged sample of my pepsin, as he admits he did of Boudault's on a former occasion.

My only object in this communication is to set myself right before the professions of medicine and pharmacy.

In this test the same varieties of pepsin are used and the same method pursued as by Mr. Scheffer, except drying the residue, which has been done to secure greater accuracy of result.

In each of four suitable bottles were placed sixty grains of coagulated albumen (white of egg), one fluidounce of water, five drops of muriatic acid, and five grains of Boudault's, Grimault's, Houghton's, and Hawley's pepsin respectively.

These were kept in the same water-bath, at a temperature of 98° to 102° Far., and frequently agitated during the space of four hours. At the end of this time the undigested portions were removed and drained of moisture.

The following appearances were presented by the residua respectively :

That digested in Houghton's pepsin appeared unaltered in form, color and quantity, and soon became dry as before digestion.

That digested in Grimault's had lost something of its opacity, the angles were rounded, the quantity sensibly diminished, and presented an appearance of increased softness and moisture.

That digested in Boudault's possessed a slightly translucent appearance, the angles of the remaining pieces entirely destroyed and the quantity decidedly diminished, wet and inclined to remain so.

That digested in Hawley's pepsin had become nearly translucent and amorphous, the quantity much more diminished than the last and very wet, evidently considerable peptone adhering to the undigested portions.

These residua, together with sixty grains of coagulated albumen, which had been subjected to no digestion, were placed separately upon clean earthen plates and dessicated to dryness.

This dessication was employed to avoid the difference of weight due to the difference of capacity for retaining water possessed by substances in different stages of digestion.

After complete dessication the residua weighed as follows:

The albumen which had undergone no digestion weighed	7½ grs.
That digested in Houghton's,	7½ "
" Grimault's,	5 "
" Boudault's,	2 "
" Hawley's,	1 "

Now since it appears that one grain of dry is equal to eight grains of fresh coagulated albumen, it follows that

Houghton's pepsin is entirely negative, or digested nothing.	
Grimault's digested	20 grs.
Boudault's "	44 "
Hawley's "	52 "
One grain of Grimault's pepsin digested	4 grs.
" Boudault's "	8½ "
" Hawley's "	10½ "
Grimault's digested of the albumen,	$\frac{24}{60}$
Boudault's "	$\frac{44}{60}$
Hawley's "	$\frac{52}{60}$

This last comparison between Boudault's and Hawley's pepsins agrees, within a very small fraction, with my digestive test upon fresh beef, made more than a year ago, and published in my circular. This circumstance is somewhat corroborative of the correctness of both tests.

J. S. HAWLEY, M. D.

Brooklyn, N. Y., Feb. 18th, 1871.

REVIEW.

Taschenbuch der Geheimmittellehre. Eine kritische Uebersicht aller bis jetzt untersuchten Geheimmittel. Herausgegeben, von DR. G. C. WITTSTEIN. 3c vermehrte Auflage. Nördlingen, 1871.

[Handbook of Secret Medicines. A critical review of all the secret medicines analyzed until the present time. Third enlarged edition.]

The fact, that in about four years this little work has reached its third edition, is sufficient proof that the labors of the author have been appreciated. Wittstein is an unrelenting enemy of the nefarious industry in nostrums. Having himself analyzed quite a number, or caused them to be examined by his pupils and others, he was peculiarly fitted for this critical compilation, which embraces also the labors

in this direction of Hager, Jacobsen, Casselmann and many others. The book confines itself, for obvious reasons, to those secret preparations offered for sale in Germany; but we find among them quite a number which are more or less known in this country and have their birthplace in Germany, Switzerland, Italy, France or England; even a number of American origin are "ventilated" therein, the proprietors of which had "enterprize" enough to introduce them on the old continent.

The articles are arranged in alphabetical order, and a short history is in nearly all cases attached, giving the originator or manufacturer, the diseases which it pretends to cure, a description of the physical properties and style in which it is put up, the retail price, the pretended constituents, the names of the analysts, the true composition, and the actual retail value, if made in a respectable apothecary's store. We extract the formulas for a few articles only, which may be of some interest to our readers:

Coca Pills, by Sampson, New York. According to Hager and Jacobsen, composed of powdered coca and extract of coca in about equal quantities; value about one-fourth of price.

Eau de Cythère, a hair color restorer, consists of 4 chloride of lead, 8 hyposulphite of soda, 88 water. A similar composition has *Eau de fées*, which, a couple of years ago, was introduced here. The writer found in a sample also some alkalis, earths and traces of nitric acid, originating probably in the spring or pump water used. Hager and Jacobsen give the following formula: hyposulphite of lead $1\frac{1}{4}$, hyposulphite of soda 3, glycerin 7, water 88 parts.

Granular Effervescent Citrate of Magnesia, by Bishop, of London, consists merely of bicarbonate of soda and tartaric acid.

Pommade des Châtelaines, a hair invigorator, consists of benzoinated lard and some volatile oils.

Hamburg Tea, by Frese & Co., of Hamburg: Senna 8, manna 3, coriander 1.

Magnesian Aperient, by Moxon, of England, is, according to Siller, anhydrous sulphate of magnesia 31, carbonate of magnesia 14, bicarbonate of soda 30, tartaric acid 25 parts.

Lait de Perles, according to Dragendorff, 1 white lead, 7 rose water.

Swedish Essence of Life is made also in this country, under various names. As usually made by apothecaries, it is a tincture prepared from 4 aloes, 1 agaric, 1 rhubarb, 1 saffron, 1 zedoary, 1 gentian, 1 myrrh, 1 theriac, with 100 to 120 dilute alcohol. The secret medicine manufacturers usually substitute cheaper articles for the high priced saffron and rhubarb.

Hoff's Extract of Malt has been repeatedly altered in its composition. It is now a good beer, of a pretty constant alcoholic strength of 3 per ct., but varying in the amount of extract between 5.3 and 10 per ct. The beer sometimes contains an infusion of a bitter herb (buckbean, blessed thistle) and of

the bark of *Rhamnus frangula*. According to one original receipt, beer was mixed with a small quantity of a strong infusion of marsh mallow root, coriander, staranise, and grains of paradise, and with some simple syrup, glycerin, oil of lemon, oil of orange and beer coloring (caramel). The consumers can make it for, at most, one-sixth of its price.

Zimmermann's Extract of Malt, which, like the former, comes likewise from Berlin, is similar in composition.

Matico Injection, by Grimault, of Paris, for gonorrhœa, is made, according to Rjoerklund, by dissolving 4 grains sulphate of copper in 8 oz. infusion of matico (from $\frac{1}{2}$ oz.)

Syrup of Horseradish, by Grimault. Hager gives the following directions: 50 p. each of fresh scurvygrass, buckbean, and watercress, 60 of horseradish, 40 of fresh orange berries, are infused with 3 cinnamon in 50 p. white wine, and after a day expressed; 250 p. sugar are dissolved in the filtrate.

Iodinized Syrup of Horseradish, by Grimault, contains 10 iodine and 5 potassium iodide in 8000 of the former.

Sirop de Lait Iodique, by Bouyer, of Paris. 200 cows' milk, 60 cane sugar, a little soda, and 1.6 of potassium iodide, are evaporated to 100 parts.

Myrrhine, by J. B. George, of Paris, for the preservation of the teeth: glycerin 38, myrrh 7, arrowroot 5, chalk 54, oil of cinnamon 1 part.

New York Pills, by Sampson, of New York. The $1\frac{1}{2}$ grain pills consist of powdered coca 25, extract of coca 30, powdered iron 35 parts.

Opiate pour les Dents, by Pinaud. Syrup 70, chalk 21, gypsum $7\frac{1}{2}$, magnesia $1\frac{1}{2}$, colored with anilin red, containing arsenic, and flavored with oil of cloves and of spearmint.

Brandreth's Pills contain resin of podophyllum, inspissated juice of poke berries, saffron, cloves, oil of peppermint.

Holloway's Pills are composed of aloe, myrrh, and saffron.

Morrison's Pills, $2\frac{1}{2}$ grains each, consist of aloe, cream of tartar and colocynth; another kind contains the same ingredients, besides gamboge.

Radway's Ready Relief, according to Peckolt, is an ethereal tincture of capsicum, with alcohol and camphor.

Radway's Renovating Resolvent, a vinous tincture of ginger and cardamom sweetened with sugar. (Hager and Jacobsen.)

Poudre Hémostatique Végétal, by Bonnatour, consists of 4 rosin, 1 gum Arabic, 1 wood charcoal.

Poudre Unique, by Godernaux, of Paris, lauded as a specific against epilepsy, is impure calomel, leaving when heated a slight reddish residue.

Oil of Horsechestnuts, by E. Genevoix, of Paris, is not the oil of the horsechestnuts, but another non-drying oil, altered by heat so that it has acquired a darker color, a pungent odor and acrid taste. (Wittstein.)

The above quotations may suffice to show the nature of the little volume, which we heartily recommend to those who desire to inform themselves of the nature of numerous panaceas, heralded as specifics for all ailments which human flesh is heir to.

J. M. MAISCH.

CHLORAL:

Hydrate—Alcoholate—Tests—Therapeutical Value—Pharmaceutical Preparations.

BY ALFRED H. MASON.

Read at a meeting of the Liverpool Chemists' Association, held December 22d, 1870.

The principal object of this paper is to show that the hydrate of chloral of commerce is not all pure hydrate of chloral, but that other compounds have been put upon the market. I have examined samples, obtained from different sources, varying very seriously in the proportion of chloroform they produce upon decomposition with alkaline reagents, and I feel it a moral duty to pharmacutists to advise them of these facts. When it is considered that one agent alone in London has disposed of twenty-two thousand pounds' weight* during the past twelve months, it is certainly high time for us to be alive to the necessity of dispensing a guaranteed article.

Chloral, C_2Cl_3HO , is formed by the prolonged action of chlorine upon absolute alcohol.† To prepare it, the current of chlorine must be kept up as long as the hydrochloric acid gas continues to escape, and the product is to be agitated with three times its volume of concentrated sulphuric acid. On gently warming this mixture in a water-bath, the impure chloral separates as an oily liquid, which floats on the surface of the acid; it is purified by distillation from fresh sulphuric acid, and afterwards from a small quantity of quicklime, which must be kept completely covered by the liquid until the end of the operation. The chemical reactions which take place in its formation were described in a valuable paper by Mr. Henry Sugden Evans, of London, last session.

Chloral is a thin, oily, colorless liquid, of peculiar and penetrating odor, which excites tears, and it has but little taste.

Liebreich says,‡ if chloral be left in contact with concentrated sulphuric acid, it is transformed into polymeric insoluble chloral; this body is more easily purified, since it is not soluble in alkalies or acids, and it may be treated a long time with these substances without decomposing. Warm this insoluble chloral, and it converts itself into

* This includes both kinds of hydrate of chloral, as distinguished now by the agents themselves,—guaranteed and unguaranteed.

† Fownes' "Manual of Chemistry," p. 813. 1868.

‡ "L'Hydrate de Chloral," O. Liebreich, 1870, p. 15.

soluble chloral. The sp. gr. of soluble chloral is 1.502. By degrees it thickens, and is sometimes transformed suddenly into soluble chloral, evolving a large amount of heat.

When we mix anhydrous chloral with water, we obtain in a short time acicular crystals of hydrate of chloral, this body being distinguished from ordinary chloral by containing one molecule of water. Its formula is $C_2Cl_3HO + H_2O$.

This method is the one alone authorized by Dr. Liebreich, of Berlin,* who took out a patent in July, 1869, for the sole use for anæsthetic purposes of chloral, hydrate of chloral, and trichloroacetic acid, ($C_2HCl_3O_2$).

The physiological and therapeutical experiments made by Liebreich led to the introduction of this product as a medicinal agent, and since he has published his formula,† with the results of his experiments, I think we should fix upon his method as the OFFICINAL one. The superiority of the hydrate of chloral manufactured under his supervision I shall prove to you (i. e., *if the larger proportion of chloroform produced by alkaline reagents from the chloral compound employed is to be the test, which is, I think, self-evident.*) He tells us that numerous experiments show that this method is far the most trustworthy.

Chloral is obtained in other ways; for instance, by the method of Stædeler, from starch, by distillation with hydrochloric acid and dioxide of manganese, formic acid, carbonic acid and other bodies accompanying it; but Liebreich states he has made experiments with this preparation and finds it is not to be depended upon in its action, from the great difficulty of preventing the formation of other compounds, especially chlorides of carbon, which serve to contaminate the chloral and render its administration dangerous.

It was contended by M. J. Personne‡ that the hydrate of chloral prescribed by M. Roussin as pure, was nothing more than a compound of chloral and alcohol. Differences being observed in the physical properties of the preparation made by Liebreich and that made by Roussin, it was found that they were two entirely distinct compounds, which was fully confirmed by an appeal to analysis. Theoretically,

* "L'Hydrate de Chloral." Oscar Liebreich.

† *Idem.*

‡ *Journal de Pharmacie et de Chimie.*

hydrate of chloral should contain 64·35 per cent. of chlorine. M. Personne found that the preparation he had made contained 63·79 per cent., whilst a sample of that made by M. Roussin yielded only 54·89 per cent. Following this indication, Personne endeavored to ascertain by experiments whether the hydrate of chloral prepared by Roussin did, or did not, contain alcohol. The results were very satisfactory in proving the presence of this compound. Further, by combining anhydrous chloral and absolute alcohol in proper proportions, Personne was enabled to prepare synthetically a substance having properties entirely similar to those of the supposed hydrate of chloral prepared by Roussin.

It is this preparation, alcoholate of chloral, represented by $C_2Cl_3HO + C_2H_6O$, that we meet with in commerce, also hydrated alcoholate of chloral, which are not to be trusted as therapeutic agents according to the system laid down by Liebreich.

At a meeting of the Pharmaceutical Society, Mr. John Williams suggested that an alkaline reagent would show the percentage of chloroform the chloral preparation would produce. Mr. Charles Umney has also made some very valuable experiments, and instituted what is now known to pharmacists as "the ammonia process" for testing hydrate of chloral. The mode of operating, and the results of his experiments, are published in the *Pharmaceutical Journal*.

I find that hydrate of chloral is insoluble in cold chloroform, tetrachloride of carbon, turpentine and bisulphide of carbon, but on the application of heat, solution is effected. The hydrate is, however, perfectly soluble in cold water, ether (·735) and absolute alcohol (·805); after the application of heat, and upon cooling, the hydrate separates in beautiful crystals, generally needles, but from bisulphide of carbon in prisms. True hydrate of chloral is not acted upon by nitrate of silver or by acids.

Alcoholate of chloral is perfectly *soluble* in chloroform, ether, tetrachloride of carbon, absolute alcohol, turpentine, and bisulphide of carbon, and upon heating does not present any change, nor can I produce crystals from these alcoholic solutions. Why, I do not quite understand. In cold water alcoholate of chloral is nearly insoluble; and I venture to suggest this as a *simple* test for these two forms of chloral compound.

If twenty grains of the chloral compound is *soluble* in thirty minims of cold chloroform, it is not a hydrate; on the other hand, if the same

Sample No.	Manufacturers, or by whom supplied.	Boiling Point.	Chloro- form Layer.	Percentage of Chloro- form produced from 500 grains of the Chloral com- pound.	General Remarks.
1	Hydrate of Chloral, prepared under the supervision of Dr. Liebreich, by Dr. Martius and Dr. P. Mendelssohn Bar- tholdy, of Berlin.	Centigr. 97°	Grains. 240	357·6 grains, or 71 p. c. (71·5)	A crystalline cake, white, easily powdered, with an agreeable melon odor, slightly pungent. Soluble in water, ether, alcohol; insoluble in chloroform, carbon tetrachlor.; partially soluble in turpentine, and bisulph. carbon without heat. With heat, dissolves and, on cooling, needle crystals are formed, except in the case of bisulph. carb. which seems, as it were, to gelatinize it. A white powder. Results same as above.
2		96·5°	240	357·6 grains, or 71 p. c. (71·5)	
3		98°	255	351·7 grains, or 70 p. c. (70·3)	Bright rhomboid crystals, melon smell, more pungent. Results as above.
4	Manufactured by Messrs. De Hane and Co., Hanover. Cake.	100·5°	190	283·1 grains, or 57 p. c. (56·6)	Semi-transparent crystalline cake, rather hard, slightly deliquescent, much more pungent smell, caustic. Soluble in water, ether (with slight effervescence), alcohol; insoluble in chloroform, carbon tetrachlor., bisulph. carbon, and turpentine (slightly), without heat; with heat, soluble in all, and upon cooling crystallizes.
5	From Messrs. T. Morson and Son, London. Crystal.	105°	190	283·1 grains, or 57 p. c. (56·6)	Thin, deliquescent, colorless, crystalline plates (in appearance resembling potass. chlor.), slightly pungent, melon smell. Soluble in water (with argent. nit. shows slight opalescence), ether, alcohol; insoluble in chloroform, carb. tetrachlor., turpentine, bisulph. carb., etc.
6	Manufactured by Messrs. Dunn, Squire and Co., Lon- don. Cake.	100°	190	283·1 grains, or 57 p. c. (56·6)	Hard, thick flakes, very white, pungent melon smell. Soluble in water, ether (but soon turbid), carbon tetrachlor. (on heating separated), alcohol (heat no change); insoluble in chloroform, turpentine (with heat deposit at the bot- tom of the tube), bisulph. carb.; separates, and heat will not combine.
7	Supplied by Messrs. Schoet- ensack and Co., London. Cake.	100·3°	190	283·1 grains, or 57 p. c. (56·6)	Hard white crystal cakes, very pungent. Soluble in water, alcohol, ether (with slight effervescence); partly soluble in turpentine, bisulph. carb.; insoluble in chloroform. On the application of heat, when cooled the ether solution shows fine needle crystals, the bisulph. carb. solution solidifies.
8	Manufactured by Messrs. De Hane and Co. Crystal.	105°	185	275·6 grains, or 56 p. c. (55·6)	A white crystalline powder, slightly deliquescent. Soluble in water, ether, alcohol; insoluble in chloroform, carbon tetrachlor., turpentine, bisulph. carbon.
9	Manufactured by Messrs. Gehe and Co., Dresden. Crystal.	110°	180	268·2 grains, or 54 p. c. (53·6)	Transparent needle crystals, caustic, rather deliquescent, slight smell. Very soluble in chloroform, ether, carbon tetrachlor. (crystals formed again with- out heat), alcohol, turpentine and bisulph. carbon (crystallizes at bottom), partly soluble in water.

quantity of chloral compound is *insoluble* in chloroform, I should consider it a hydrate,—solubility in cold chloroform and partial insolubility in cold water being quite sufficient test to lead to *doubt*; and so in proportion to the solubility, should I judge the probable quantity of chloroform which the ammonia process would yield.

Now if the theory of Liebreich, that the hydrate of chloral coming in contact with the alkalies in the blood evolves chloroform in the human system, be correct, a moment's glance will soon convince you of the immense superiority of samples No. 1, 2 and 3, and the decided obligation that pharmacists should dispense this manufacture only until it can be shown that hydrate of chloral of equal composition may be procured elsewhere.

Therapeutical Value.—If we review the pages of the medical journals for the therapeutical effects of hydrate of chloral, we shall find many cases where its action has been attended with marvellous results. There does seem not a little danger of its being erected into a kind of panacea for all the ills that flesh is heir to, of its true worth and fame suffering from too indiscriminate use, and from the administration of some of the impure compounds which are being supplied. Its value, however, is too real for actual collapse by its abuse; but its repute may be, and doubtless has been, dangerously compromised.

We find it employed in cases of “maniacal paroxysms,” “delirium tremens,” “traumatic tetanus,” chorea, diarrhœa, whooping cough, convulsions (epileptic or otherwise), with more or less benefit; it allays vomiting, and prevents sea-sickness; in puerperal mania it is well reported of; in fact, as a sleep compeller it is, in a very large number of cases, unrivalled; for while in power opium alone can be compared with it, there is this superiority to opium, that its use entails no unpleasant after symptoms, no head-ache, no nausea, no anorexia, no constipation, whilst the sleep it produces is gentle, calm and continued; at least, this is the general rule, but, of course, there are exceptions, and medical men complain that its administration is attended with uncertain results, and that its quality is not so good as it was when first introduced, and can anything justify these assertions more than the foregoing results? but even with true hydrate of chloral we must expect to find exceptional cases so long as human beings differ so greatly in temperament, constitution, and sensibility to the action of medicine.

That hydrate of chloral ought to be perfectly pure when used in medicine is unquestionable; the substitution of alcoholate is quite sufficient to produce most of the ill effects attributed to chloral. In fact, instead of being a hypnotic, it has a tendency to produce mental excitement, as ordinary stimulants.

The dose of hydrate of chloral is from 5 grains to 30 or 40 grains, according to the purpose for which it is required. A case is on record where 100 grains were taken accidentally without any evil results; but I am informed that there is danger in continued small doses. Very unexpected results have, in a few instances, occurred. And here I would strongly caution pharmacutists not to prescribe its use themselves, or supply it to the public without the sanction of a medical man.

Hydrate of chloral has been successfully administered as an antidote to strychnia.

Hydrate of chloral cannot, in consequence of its chemical properties, be administered in the shape of pills or in the form of powder; it is, therefore, necessary almost to confine its use to solutions. For dispensing purposes, Liebreich recommends a solution of the hydrate in its own weight of water. In small doses it can be given without the addition of a corrective, but simply dissolved in distilled water.

There are several pharmaceutical preparations in which the hydrate of chloral is disguised, or its taste modified, in various ways. Of the syrups containing 10 grains of Liebreich's hydrate in each dram, one made with syrup. pruni virg. is used in America; it is most palatable. Another is made with syr. tolu; others with syr. flor. aurant., syrup. cort. aurant. (as suggested by Liebreich). Another is flavored with almonds (Ferris). There is also a draught containing half dram chloral, with syrup tolu, tinct. ginger and peppermint water. Lozenges containing 1 grain hydrate of chloral in each are manufactured by Messrs. Meggeson & Co.

Spiritus choralis is made by Savory and Moore. It has a very agreeable taste and smell, but I was not able to obtain any deposit upon evaporating a little.

Limousin's capsules are known to contain alcoholate of chloral, because true hydrate cannot be secured in a gelatinous envelope.

In describing and dispensing hydrate of chloral, it should be borne in mind that no corrective with alkaline reaction can be employed with

it, because such an administration would bring about the transformation of the substance.

In concluding this paper, I must add that I have no interest whatever in putting forward the claims of Liebreich's manufacture, further than a feeling of moral duty to the medical profession, pharmacists and the public, together with the *conviction* that other manufactures which have come under my notice do not attain the desired standard. It appears that the importers of this article now know a guaranteed hydrate of chloral and an unguaranteed hydrate of chloral. There is a guarantee to the consumer, which is the protection of the hydrate manufactured under Liebreich's supervision; this is a registered trade mark. It is offered in three forms—cake, crystal and powder; but the action of the cake is more to be relied upon. Each product should be kept in well-stoppered bottles. The large quantity which the bottles with the registered trade mark contain is, I think, a drawback to its more universal application; and I think, if the agents of this manufacture could be induced to supply it in smaller bottles,—say from 1 oz. upwards,—with the registered label on each bottle, and could produce it at a cost more in proportion with the competition, they would not only further the objects of the discoverer by more satisfactory and uniform results being produced, but also benefit mankind in general.—*Pharm. Journ., Lond., Jan. 7, 1871.*

GLYCERIN; ITS QUALITY AS IT EXISTS IN COMMERCE.

By JOSEPH P. REMINGTON, Philadelphia, Pa.

This powerful solvent and useful medicine, though but lately called from its seclusion in the cabinet in answer to the demands of this progressive age, has rapidly ingratiated itself into the esteem of the chemist, pharmacist, and the public at large.

It continues to widen its sphere of usefulness; we hear of new applications constantly; and its *bland manners* and *insinuating disposition* have won for it a host of friends, and an ever-increasing popularity.

It serves its mission as faithfully on the dressing-table of a lady as it does in our gas meters; as well as an excipient for pill masses as it does a substitute for molasses in printers' rollers, and its range of applications between these extremes is varied and extensive.

Its production, with a view to improve the quality and lower the

price, has been attended with success, as we all know. A glycerin which will answer almost every purpose (except for internal administration), can be procured for twenty-five cents per pound; and one fit for any purpose for sixty cents per pound.

One of the principal reasons for bringing this matter before you, is to detail a comparative examination of the different brands in the market, which examination was at first undertaken for the writer's own satisfaction, but which may prove not uninteresting to the Association. Each glycerin was tested by the same reagent, in the same relative quantity, at the same time; and the effect carefully noted.

The glycerins, as they stood in their commercial attire before the examination, presented quite a contrast; the most pretentious was one of the latest comers into the market, De Haen's; which, from the size of the bottle would lead to the supposition that it contained more

BRANDS.	For Strength. Sp. Gr.	Color.	Odor when warm.	Nitrate of Silver.
Bower's Pure.....	1.253	None.	None.	No precipitate.
Gordon's Pure.....	1.240	Yellowish.	Fatty.	Heavy white precipitate.
Concentrated	1.250	"	Slight.	Rose color.
Sarg's Chemically Pure.....	1.254	None.	Empyreumatic	No precipitate.
Sarg's second quality.....	1.250	Quite dark.	Like glue.	White precipitate.
De Haen's Chemically Pure.....	1.245	None.	Slight.	Rose color.

BRANDS.	Sulphuric Acid.	For Sulphate of Lime.	For Lime Salts Ox. Ammon.	Ferro-cyanide of Iron.
Bower's Pure.....	Slightly discolored.	No precipitate.	No precipitate.	Opalescence.
Gordon's Pure.....	Discolored.	No precipitate.	Slight precipitate.	Clear.
Concentrated	Discolored.	No precipitate.	No precipitate.	Opalescence.
Sarg's Chemically Pure.....	Discolored.	No precipitate.	No precipitate.	Precipitate.
Sarg's second quality.....	Slightly discolored.	No precipitate.	White precipitate.	Slight precipitate.
De Haen's Chemically Pure.....	Discolored.	No precipitate.	No precipitate.	No precipitate.

BRANDS.	Hydrosulph. of Ammon.	Chloride of Barium.	For Ethyl Butyrate.	For Sugar.
Bower's Pure.....	No precipitate.	No precipitate.	Slight odor.	Free from sugar.
Gordon's Pure.....	No precipitate.	Slight precipitate.	Strong odor.	Free from sugar.
Concentrated.....	No precipitate.	Precipitate.	Slight odor.	Free from sugar.
Sarg's Chemically Pure.....	No precipitate.	No precipitate.	Very slight odor.	Free from sugar.
Sarg's second quality.....	No precipitate.	Opalescent.	Slight odor.	Free from sugar.
De Haen's Chemically Pure..	Slight precipitate.	No precipitate.	Slight odor.	Free from sugar.

than a pound. This glycerin has attracted attention by reason of the free use of adjectives on the label, and on account of a vigorous attack on the propriety of using the adjectives by the editor of a trade journal.

Sarg's Pure Glycerin is put up in a very attractive style, the blue stencilled label and the refractive property of the glycerin contrast to very good advantage.

The American glycerins were in a plainer and neater dress, Bower's, Gordon's and Concentrated being put up in the usual glycerin bottle with a plain label.

The result will be found in the foregoing table.

—*Proc. Amer. Pharm. Assoc.*, 1870.

GLYCERIN SOLUTIONS OF PEPSIN AND OTHER SUBSTANCES.

BY LIONEL S. BEALE.

In *Nature* of December 29th, Professor M. Foster calls attention to the method of making glycerin extract of pepsin pursued by Von Wittich, and remarks with reason that the means hitherto adopted for preparing pepsin for medical purposes are clumsy and inefficient. There is, however, one exception, a mode of preparation which has long been in use, and which is by no means inefficient. This will be found to possess some practical advantages over the process of extracting the fresh mucous membrane with glycerin, while from it the glycerin solution can be prepared quite as pure and clear, and as strong as by maceration.

As long ago as 1858, ("Archives of Medicine, vol. i., pp. 269—316,) I described a method of obtaining the active digestive material from the pig's stomach, which answers perfectly, and has been employed in practice ever since. It simply consists in quickly drying the mucus expressed from the stomach glands upon glass plates.* The dried mucus is then powdered and kept in stoppered bottles. It retains its properties for years. Eight-tenths of a grain will dissolve *one hundred grains* of coagulated white of egg.

Now, from this powder is easily prepared, by solution in distilled water, a perfectly clear and colorless digestive fluid of great activity, which *can be readily filtered*.

* This pepsin is prepared for medical purposes by Messrs. Bullock and Reynolds, 3 Hanover Street, Hanover Square.

Some years ago, I found great advantage from subjecting tissues to the action of a very small quantity of this solution in glycerin, and keeping the whole at the temperature of 100° for some hours. By this process, the elements of the tissues were softened, and could be dissected from one another readily for examination under the highest magnifying powers.

No doubt there is much to be learnt concerning the nature of the action of such substances upon tissues by the use of glycerin solutions. For microscopical work, glycerin is of more use than any other medium. Not only may various substances be removed from tissues, but others may be introduced, and the tissue subjected to the action of various reagents without destroying it. In fact, the action may be regulated with the greatest nicety. Nearly all the tests required in microscopical examination may be dissolved in glycerin, ("How to Work with the Microscope," p. 297, 1867,) and tissues of the most delicate character may be preserved in it, and will retain their microscopic characters for years, *if care be taken to obtain the best and strongest glycerin.*—*Lond. Pharm. Jour.*, Jan. 21, 1871, from *Nature*.

NOTES ON AROMATIC SULPHURIC ACID AND CONFECTION OF SENNA.

BY JOHN W. EHMAN.

Every dispenser is acquainted with the objections which may be brought up to the present officinal formula for aromatic sulphuric acid. As the committee on the revision of the Pharmacopœia is now in session, it is to be hoped that the formula under consideration may be modified, and with it several others of a like nature.

The aromatic sulphuric acid is used most extensively as a solvent for sulphate of quinia, in prescription, usually with watery or syrupy vehicles. When prescribed alone for the medicinal effects of the acid, it is not unfrequently diluted in order to modify its taste, and, avoiding the use of drops, to render its administration more convenient.

Now, when the elixir of vitriol is associated in this manner with watery fluids, the coloring and extractive matter becoming insoluble in the menstruum, precipitates, and the result is a muddy mixture, instead of the clear solution we should otherwise obtain. But the elixir of vitriol, even undiluted, is constantly undergoing change, with the continual deposition of a bulky precipitate, so that it can be dispensed

in a bright condition only by frequent filtration. This, of course, is exceedingly annoying, and it is a reproach to the progress of pharmacy that the formula has been so long retained without material change. The old method of preparing it by exhausting the powders with the mixed alcohol and acid is preferable to that now employed, as it gives a preparation less prone to deposit by standing. The other objections, however, apply to this with equal force; for the ingredients afford to the menstruum principles, which must of necessity separate upon dilution.

In revising this formula, we should keep in view the fact that the resulting preparation should be miscible with water without precipitation, hence aromatics of an oleoresinous nature cannot be used.

The following formula we have used for some time, and have found entirely satisfactory:

Take of Sulphuric Acid, three troy ounces;
Fluid Extract of Orange Peel, one fluid ounce;
Red Rose Leaves, two drachms;
Boiling Water, one fluid ounce;
Alcohol, a sufficient quantity.

Add the acid gradually to half a pint of alcohol, and pour the boiling water upon the rose leaves; when both liquids have become cool, unite them, add the fluid extract and sufficient alcohol to make up the measure of eighteen fluid ounces. Mix thoroughly and filter.

Elixir of vitriol, thus prepared, has a pleasant aromatic odor and flavor, and the beautiful red color of the rose leaves, heightened by the presence of the acid. It is miscible with water without turbidity, and a specimen, after long keeping, has deposited but a trace of sediment.

CONFECTION OF SENNA.

This preparation, when properly made, is an excellent laxative—for habitual constipation, superior, perhaps, to any other remedy. It is not in such general use among physicians or the public as it is entitled to, and this probably arises from the fact that much of the confection of senna of the market has little or no resemblance to the officinal article, and is comparatively worthless. Pharmaceutically considered, the officinal process yields a result which is unobjectionable, save in two particulars; first, the presence of the powders of senna and coriander (and especially of the latter, which is most diffi-

cult to prepare,) imparts a degree of "grittiness" which is disagreeable to the patient, giving the impression that "dirt" is present; secondly, the consistence of the confection when evaporated to the specified weight, varies as prepared from different specimens of drugs, and is sometimes too thin, when the mass is apt to go into fermentation. Fortunately, these defects may be easily remedied. In our opinion, the purging cassia, considering that it is so difficult to obtain, might well be omitted and substituted by an additional quantity of senna, particularly as there can be no advantage in multiplying the number of substances having similar therapeutical properties, in this or other preparations. We have used the modified formula given below, (the coriander also being omitted and substituted by ginger,) which is free from the objections we have mentioned. It is much more agreeable to take than the officinal confection, and is equally efficient:

Take of Tamarinds,	20 parts.
Figs, bruised,	20 "
Prunes, sliced,	15 "
Fluid Extract of Senna, . .	10 "
" " Ginger, . .	1 "
Sugar,	30 "
Water, a sufficient quantity.	

Digest in a close vessel, by means of a water bath, the tamarinds, figs, and prunes in 10 parts of water, for three hours; separate the coarser portions with the hands, and press the pulpy mass by rubbing, first through a coarse sieve, and then through a very fine one. Mix the residue with 4 parts of water, and, having digested the mixture for a short time, treat it as before, and add the product to the pulpy liquid first obtained, evaporate to a syrupy consistence over a water bath, add the sugar, and continue the heat for twenty minutes, or until the sugar is dissolved; then remove from the bath, add the fluid extracts of senna and ginger, and mix thoroughly.—*The Pharmacist, Chicago, Jan. 1871.*

NOTE.—We feel inclined to enter a gentle protest against alterations in the characters of time-honored preparations, that change their appearance or consistence, which are well known to the medical profession and the people. The peculiar color and odor resulting from the action of sulphuric acid on cinnamon is well marked in elixir of vitriol. The deposit by age, though objectionable, is by no means peculiar to this preparation, and is a less evil than the proposed improvement.

In relation to the Confection of Senna, it is certainly a mistake to omit the Purgine Cassia, and to medicate with so variable a preparation of senna as the fluid extract, when the unaltered senna can be so readily obtained. The grittiness arising from the use of powdered senna is due either to want of care in powdering, or to inorganic grit in the senna, which should have been separated before powdering. The coriander is troublesome to powder; yet the very agreeable aroma which it possesses is difficult to replace by fluid preparations of it, and hence the trouble should be accepted. In reply to the remark of the author about the scarcity of Purgine Cassia, it may be said that *demand will bring supply*, just as certainly as cessation of demand will eventually create scarcity, as in the case in point.—EDITOR AMER. JOUR. PHARM.

THE PRESENCE OF MANGANESE IN BEECH-NUTS.

BY DR. J. E. DE VRIJ.

In the introductory address of the chairman of the last Pharmaceutical Conference* at Liverpool, my attention was fixed by the following sentence:—"By some authors it has been denied that plants absorb from the earth such metals as are not absolutely essential to their nutrition. Experiments, however, afford strong evidence to the contrary. Mr. R. Warington (Journ. Chem. Soc. 1865) found in the ashes of the beech and birch 0.193 per cent. of manganese."

This quotation of Warington's investigation induces me to mention the fact observed by myself more than twenty years ago. As at that time the investigation of the ashes of plants occupied a great many chemists, I also analysed some ashes. Amongst them were the ashes of beech-nuts collected by me in the neighborhood of Giessen, in Germany. As there exists a great quantity of manganese ore in that vicinity, the presence of a relatively large quantity of manganese in these ashes seemed to me quite natural. In 1847, being at the meeting of the British Association at Oxford, I visited the beautiful park of Blenheim, and collected there on that occasion some unripe beech-nuts. After returning home, I analysed their ashes and found also in these, although grown in a very different soil, the presence of a relatively large amount of manganese. A third analysis of the ashes of beech-nuts, collected in the wood of the Hague, confirmed the same fact. As I was accustomed to use the ashes of beech-nuts in my lectures to demonstrate the reagents for manganese, this fact has been fixed in my memory.—*Lond. Pharm. Journ., Jan. 21, 1871.*

* *Pharm. Journal*, Sept. 17, 1870, p. 234.

PHYSOSTIGMA VENENOSUM.*

The *Physostigma venenosum*, or ordeal bean of Old Calabar, has of late been used medicinally. Its peculiar and powerfully poisonous properties were long ago made known by Drs. Christison and Balfour, but we owe the fuller knowledge we now possess of its powers to the elaborate investigations of Dr. Fraser, of Edinburgh, Dr. Robertson and other observers. The active principles of the bean quickly enter the blood and gradually produce general paralysis, which is due, according to Dr. Fraser, to changes effected in the spinal cord. In an animal poisoned by the bean the reflex functions of the cord are destroyed—"It acts on the spinal cord by destroying its power of conducting impressions." This results "in muscular paralysis, gradually extending to the respiratory apparatus, and producing death by asphyxia; and, in a rapid paralysis of the heart, causing death by syncope. It also causes paralysis of muscular fibre, striped and unstriped." The knowledge obtained by these investigations led to the employment of the bean as a remedy in tetanus, and a considerable number of cases have been treated by it. Dr. Fraser has a high opinion of its value, and has reported twelve cases of tetanus treated by it, of which nine recovered. Many other cases of its administration in this disease have been reported in the various medical journals, English and foreign, and in not a few of these instances the patients have undoubtedly recovered; but the results, on the whole, have scarcely supported Dr. Fraser's estimate of the remedial value of the drug, while in some cases it has been suspected of doing harm rather than good, and of increasing the patient's danger by its paralyzing action.† It has been observed, too, that in most of the cases of recovery the disease lasted about a month, just as in cases successfully treated with atropia, hydrate of chloral, and other remedies. The physostigma has been employed in other maladies. It is indisputably a weapon of great power, and must be used with great care and watchfulness: at the same time, in such a disease as tetanus, it must, as Dr. Fraser has insisted, be employed early. The Pharmacopœia contains two preparations, the powder and an extract; the first may

* Abstracted from a series of papers on the "Progress of Therapeutics," published in the *Medical Times and Gazette*.

† Mr. Holthouse's case, *Clinical Society's Transactions*, vol. ii.; and *Medical Times and Gazette*, 1869.

be given by the mouth, in doses of from one to four grains for an adult; the extract, subcutaneously, in doses of one-tenth to one-third of a grain and more, the dosage being regulated by the effects.

The physostigma has also the peculiar properties of causing very rapidly contraction of the iris, and altering the power of accommodation of the lens, and it has been largely used and proved of great value in ophthalmic practice. Its action on the iris was first pointed out by Dr. Fraser,* and first made use of by Dr. Argyll Robertson.† A very interesting communication on the subject, by Mr. J. Soelberg Wells, containing a description by Mr. Bowman of the effects of a solution of the bean on his own eye, was published in the *Medical Times and Gazette* in 1863.‡ It may be applied by touching the inside of the eyelid with a solution, one minim of which equals four grains of the bean, or by placing within a minute portion of paper which has been saturated with a strong solution.—*Lond. Pharm. Journ.*, Jan. 21, 1871.

YLANG-YLANG.

The essence of *Ihlang-Ihlang* is distilled from the flowers of the *Unona odoratissima*, a large tree which grows in the Philippine Islands, the Straits of Malacca, and the Indian Archipelago. *Ihlang-Ihlang* (improperly spelt *Ylang-Ylang* by the Spanish residents) is the native *Tagal* name this tree bears in the Philippine Islands. The Malays call it *Kanonga*, and it is found described under that name in the works of Rumphius, an eminent botanist of the seventeenth century, who says that the smell of the flowers is so powerful that it scents the air for miles around. The flowers are flosculent and drooping, and of a greenish-yellow color. They were first distilled by a chemist at Manilla, and yielded an essence of an exquisite odor, somewhat partaking of the jasmin and lilac, but still having a flavor *sui generis*. This essence is now largely manufactured, and used by the leading perfumers either pure or in compounds. It is made

* On the Characters, Actions and Therapeutic Uses of the Ordeal Bean of Calabar." Graduation Thesis. August, 1862. *Edinburgh Medical and Surgical Journal*, 1863.

† *Edinburgh Medical and Surgical Journal*, 1863.

‡ "On the Effects of the Solution of the Calabar Bean on the Pupil," etc. *Medical Times and Gazette*, vol. i, p. 500, 1863.

principally at Manilla and Singapore. The former is the finest, and costs when pure about £2 per ounce.—E. RIMMEL.—*Lond. Pharm. Journ.*, Jan. 21, 1871.

ON THE USE OF WAX, TALLOW, ETC., IN SUPPOSITORIES.

BY CHARLES L. EBERLE.

QUERY 29.—The fusing-point of true butter of cacao being near that of the temperature of the body, what is the influence of such additions as wax, tallow, &c., on its fusing-point, and to what extent are such additions objectionable, if at all, in vaginal or urethral suppositories?

Pure cacao-butter may be asserted to be but rarely if ever met with in the drug market. The samples for sale vary sensibly in color and consistency, and no positive rule for judging of a pure article by cursory examination can be offered. A candid admission by several prominent manufacturers of the article, reveals the fact of its frequent adulteration, and since the extended demand and sale of this production for cosmetic and suppository application, a greater variety of mixtures known as butter of cacao is to be found than formerly.

The pharmacist, however, but seldom applies it to uses other than in the preparation of suppositories, the successful use of which depends upon a base, whose point of fusion will correspond to animal heat, which can be handled readily when in form, and which upon exposure to the natural heat of the body will promptly liquefy, not melt slowly, thus depositing quickly the medicating ingredient upon the surface to which it has been exhibited.

The butter of cacao most nearly satisfactory to pharmacial use, is of a dirty white, inclined to yellow in appearance, firm under pressure, yet disposed to yield its surface when held in the hand by the warmth thus imparted, fusing readily at or about 98°, which sets rapidly after fusion when exposed to cold, and which, after such exposure, maintains its original character at ordinary temperatures.

Such cacao-butter may be had. I here exhibit a specimen, and under proper manipulation it needs no addition of a hardening ingredient to adapt it to suppository use.

Cacao-butter at 98° F. liquefies. This is more apparent in the rectum or vagina than by merely holding in the hand. The mixtures, I mean the mixtures made by the pharmacist with the cacao-butter of the market, vary in their behavior in proportion to the quantity and character of the hardening ingredient used in connection with it.

A considerable proportion of cetaceum may be added without materially affecting the value of a suppository; at least ten per cent., if combined with the butter, will produce a suppository which will not be likely to be complained of by the medical profession, but the slowness with which this alloy, so to speak, fuses, makes this or the addition of any hardening substance a serious objection. We need promptness of action in the application of medicines by suppository, which can be best secured by rapid liquefaction of the excipient, and no mixture or single substance combines the essential requisites, so completely, as a good sample of so-called cacao-butter.

The addition of wax to cacao-butter is to be reprehended. While, under restriction, a mixture may be formed which will harden more quickly and bear more handling than the butter alone, the reflecting pharmacist will bear in mind the slowness of its fusion at animal heat, and the consequent suspension of the medicine, which should be diffused and deposited over as large a surface as possible.

Content with the simple fusion of such mixtures, the ease with which they may be manipulated, and the temptation to dispense quickly, the more important fact has been overlooked by many, who will doubtless correct the error in their future operations. I have invariably found that when the additions were not large enough to render the use of the moulded cones inadmissible, there was no advantage gained by a combination of base or excipient.

With regard to the effect upon the animal tissues of such applications of hardened suppositories, I can only say that where they are of such a character as to produce local irritation, the uneasiness induced requires their removal; this objection is now but seldom met with. Within the past two years the education of the pharmacist has materially advanced in this direction, so that no store of repute dispenses cones that will not at least fuse at animal temperature, however slowly this fusion may occur, or however imperfectly they may mediate from the suspension of the medicine until its ejection by the action of the parts. Those having but occasional prescriptions for them, are now in the habit of depending on the larger retail establishments, who furnish the trade with a great variety.

There need be no apprehension of a local irritation arising from the use of wax, if not carried beyond the proper fusing-point. As much as fourteen per cent. is used by pharmacists of good repute, without complaint in this respect. The mixture fuses quite slowly at animal

temperature, but there is no apparent dissection of the cone, whereby the wax is separated from the butter *during fusion*, however much this may be the case when the melted substances are allowed to cool *ad libitum*. There is a uniformity of constitution so long as the heat is present.

(To be continued in the April number.)

SEMI-CENTENNIAL ANNIVERSARY OF THE PHILADELPHIA COLLEGE OF PHARMACY.

At the College Hall, February 23d, 1871.

At the meeting of the Board of Trustees, held on Tuesday, the 7th of February, a committee of three, consisting of Wm. C. Bakes, James T. Shinn and Thomas S. Wiegand, were appointed, to take all measures necessary for celebrating, in a suitable manner, the approaching fiftieth anniversary of the first meeting of the College, at the Hall on the 23d instant.

In pursuance of this duty, the Committee issued tickets of invitation to a large number beside the members, including several pharmacutists in other cities.

On the 23d of February, at 7½ P. M., the members and invited guests gathered, to the number of two hundred and fifty, in the lecture-room, second story. On the tables a number of objects, interesting for their antiquity and calculated to show a contrast with similar articles of the present day, were arranged. Among them an old rose-water still and an exhausting apparatus, the modern elastic clyster apparatus, with the old pipe-and-bladder arrangement, old chemicals, labels and books, with quite a display of the best chemicals of the present day from the laboratory of Rosengarten & Sons. It was pleasant to observe so many friends, whose interest in the Institution had brought them to the meeting. Among them we observed Prof. Moore, Mr. Thompson and Mr. Sharp, of Baltimore, Mr. Bedford, of New York, Mr. Heinitsh, of Lancaster, and Mr. Lemberger, of Lebanon, Pa. Prominent among the medical gentlemen present, were Professors Rogers and Leidy, of the University of Pennsylvania, and Professors Gross and Rand, of the Jefferson College; Dr. W. L. Atlee and Dr. Ruschenberger, U. S. N., of Philadelphia; Prof. Carson, Prof. Wood and the venerable Prof. Samuel Jackson, all ex-professors of the College, were prevented from coming. After more than half an hour spent in conversational intercourse, President Dillwyn Parrish called the meeting to order in a few remarks, and invited Peter Williamson, Esq., who officiated at the initial meeting as its secretary, fifty years ago, to preside. Mr. Williamson, in taking the chair, addressed the meeting as follows:—

“Gentlemen: I return you my thanks for this expression of your desire that I should preside on this interesting occasion—an occasion, gentlemen, which, with its pleasant memories, is not unmingled with its thoughts of sadness. These naturally force themselves upon me as I look around and see but few of those

who were associated with us in the early organization of the College. Many who were my personal friends are no more. Death has, indeed, thinned our ranks, and left but few to join in this our fiftieth anniversary, and the few who remain must ere long follow those who have preceded them to 'that bourne whence no traveller returns.' But, gentlemen, I will not detain you by giving expression to my own feelings, but will proceed by carrying out the programme which has been arranged for the celebration of our semi centennial anniversary."

The President then requested the Secretary of the College, Charles Bullock, to read the minutes of the first meeting of the originators of the College of Apothecaries, held at Carpenter's Hall, February 23d, 1821. This was then carried out, and many interesting points relative to the institution of the College were brought forward illustrating the circumstances of its origin

In the absence of one of the most faithful historians of the College, Samuel F. Troth, James T. Shinn was called upon to read from a memoir, prepared by that gentleman, historical notices of the officers, professors and transactions of the College, in giving a fair account of that group of earnest men whose public spirit and liberality had fostered the early growth and development of the institution—such as Charles Marshall, Peter Lehman, Henry Troth, Daniel B. Smith, Dr. Samuel Jackson, Peter Williamson, Samuel Biddle, Frederick Brown, Charles Allen, Samuel P. Wetherill, Charles Yarnall, Stephen North, Algernon S. Roberts, Warder Morris, Edward B. Garrigues and many others.

Five years elapsed before a diploma was granted; the lectures were delivered in the old Hall of the German Society, now the gas-office of the city, Seventh, below Market. The names of the professors in the School of Pharmacy were then called over. Dr. Gerard Troost on chemistry, and Dr. Samuel Jackson on materia medica, were the original faculty in 1821. Dr. George B. Wood succeeded Dr. Troost in 1822. In 1827, Dr. Benjamin Ellis succeeded Dr. Jackson, who was elected to the University. In 1831, on the death of Dr. Ellis, Dr. Wood was transferred to the chair of materia medica, and Dr. Franklin Bache elected to the chemical chair. In 1835, Dr. Wood having been elected to the University, Robert Egglesfeld Griffith, M. D., succeeded him for a single course, when he entered the faculty of the University of Maryland, and was succeeded by Dr. Joseph Carson. In 1841, Dr. Bache having been elected to the Jefferson Medical College, he was succeeded by Dr. William R. Fisher, late of the University of Maryland, whose health giving way, he resigned in 1842, and was succeeded by the present incumbent, Dr. Robert Bridges, whose service of nearly thirty years, claims for him the title of veteran. Much to the regret of his numerous friends, Dr. Bridges, now convalescing from a serious attack of typhoid fever, was unable to attend. In 1846, the new professorship of Pharmacy was instituted, and William Procter, Jr., a graduate of the College of 1837, was elected to fill the chair. In 1850, Prof. Joseph Carson, after a faithful service of fourteen years, resigned his position, to succeed Dr. Wood in the University, when Dr. Robert P. Thomas was elected to succeed him. Dr. Thomas, after a most energetic and faithful service of fourteen years, during which, largely owing to his exertions, the class doubled its numbers, died in the midst of his usefulness at the close of the session early in 1864, and was suc-

ceeded by Edward Parrish, a graduate of the class 1841-2. In 1866, Prof. Procter retired from the chair of Pharmacy, after twenty years' service, and John M. Maisch, late of the Army Laboratory, was elected to the chair of Pharmacy. Finally, in 1867, Professors Parrish and Maisch exchanged their chairs with the approbation of the Board, and are the present incumbents.

The idea of having a Laboratory School, for teaching Practical Pharmacy and Pharmaceutical and Analytical Chemistry, had often been suggested as needful to complete the tuition in the College. But it was not until a fund was raised, through the efforts of its Alumni, and a suitable apartment provided by the Institution, that it was carried into effect the present session by the untiring industry of Prof. John M. Maisch.

In view of the connection which the University of Pennsylvania had with the origin of the College, the President invited Dr. R. E. Rogers to speak. Dr. Rogers, after apologizing for want of preparation, said that his heart had been touched in connection with this celebration, and he could not hesitate to accept the invitation extended. He had learned a curious fact to-night—that, instead of this College being the child of the Older Institution, they were brothers, and stood together in fraternal affection. He congratulated the assembled company upon the success which had attended the labors of those few independent men who refused the patronizing hand extended by the old University, and preferred to labor only as brothers in the kindred works of Medicine and Pharmacy. He spoke favorably of the excellent influence this College had had on the practice of medicine, and extended his hearty sympathy to it as a beneficent institution now celebrating its semi centennial anniversary. Dr. Leidy made a few remarks. Prof. Samuel D. Gross, of the Jefferson Medical College, being called upon, responded in a speech of some length, saying that he was somewhat familiar with the history of the College of Pharmacy; he had never lost sight of it since he had become acquainted with it. He needed not to say how much, not only the medical profession, but the general public were indebted to this College for its sanitary influence. He was somewhat astonished at the want of appreciation of the Institution by the people of Philadelphia. He believed that its influence had gone far to change the character of Pharmacy and medicines in this country since he commenced the study of medicine, and that its graduates, scattered throughout the land, had accumulated a wealth of practical information that he was glad to acknowledge. After alluding to some curious and amusing facts in connection with the Pharmacy of the seventeenth century, he acknowledged the heavy debt due by medicine to chemistry for its discoveries and improvements in the *Materia Medica*. He considered the apothecary an important individual, standing between the physician and his patient, to aid his curative efforts, and frequently to correct the clerical errors which all physicians are liable to make in their prescriptions, and which the skilful apothecary knows how to detect. Dr. Gross, in conclusion, expressed his sympathy with the object of the meeting.

Prof. Edward Parrish being called for, alluded to the fact that the birth of our College occurred at a time when the labors of the brilliant corps of *savants* that marked the early years of our century had culminated in those numerous

discoveries that now formed the broad and deep foundations of the science of chemistry, and which have rendered the names of Davy, Dalton, Berzelius, Farraday, Ampère, Oersted, Arago and others, imperishable. He alluded to our Dr. Hare as one of this class, and considered the influences arising out of this new epoch in science as favorable to the new-born College.

Thomas S. Wiegand, on being called, stated, in regard to the work accomplished by the College of Pharmacy, that it might be proper to recall some of the evidence; primarily the School of Pharmacy was a leading object when the College was organized; this the meeting well knew. Its progress from a class of three to that of the present class, 198, is a note-worthy advancement. The advantage of intercourse among brethren in the same calling whose position as business men precluded their attendance on the lectures was alluded to; one of its best results was the publication of the Journal. It commenced as a slim pamphlet, four numbers of which were issued in three years! It has now completed its 42d volume, of 600 pages yearly, and it was hazarding nothing to say that in no other serial was there more useful, practical, every-day information suited to the wants of the apothecary, and that, after forty years growth as a gratuitous business under the auspices of the Committee outside of the College, it had come to reside at home, and that this Hall was now the office of publication, where, under the direction of its Business Editor, its material interests would receive prompt attention. Mr. Wiegand then alluded to the resignation of the Editor, to take effect at an early date. He, in common with the members generally, regretted the change, but, that after the reasons assigned, the College felt it necessary to accept. There was one duty left, that of acknowledging the great debt we all owe to the Editor for his untiring labors, and asking his acceptance, from his many friends, of a testimonial to this feeling.

[The Editor, who until this moment, was unconscious of having any part to act in the programme, was completely taken by surprise when Mr. Wiegand stepped toward him and presented a handsome gold watch, of American manufacture, bearing his monogram and a complimentary inscription.]

Mr. Procter replied, in regard to the testimonial, that he hardly knew how to express himself in proper terms; he had not expected to take so conspicuous a part in the proceedings, and could only heartily thank his friends for their valuable gift; but in relation to the objects of the meeting and the Journal he might be permitted to say a few words. Among the agencies that had been active about the rise of the College was a class of men called Manufacturing Chemists, whose influence on pharmacy and medicine had been somewhat overlooked this evening. It was true that numerous and brilliant discoveries were made in chemistry, but it was such men as Pelletier and Robiquet and Merck abroad, and Farr and Kunzi and Rosengarten and their successors at home, who, in working out the problem of economical production of chemicals from these discoveries in chemistry, did invaluable service to Pharmacy and, through it, to medicine, by multiplying and cheapening valuable medicinal agents, at the same time that uniformity and potency was increased, as was acknowledged in general terms by our medical friends this evening. In regard

to the Journal, it should be known how much was due to the labors of that band of disinterested men, of whom Daniel B. Smith, Elias Durand, Charles Ellis, Dr. George B. Wood, Dr. Samuel Jackson, Samuel P. Griffiths, Jr., Thomas Evans, William Hodgson, Jr., John C. Allen and Joseph Scattergood were examples, who suggested and sustained it with practical contributions and original papers at a time when such laborers were scarce, until the graduates came to its support. The first desultory numbers were wholly thus made up, and the best papers, even after the appointment of an Editor, were from these men. The labor of editing in its early history was increased by the scarcity of material. [The French being the only pharmaceutical journals then reaching this country, and the medical journals being meagre in subjects appropriate for selection.] Dr. Benjamin Ellis edited the two first regular volumes, commencing April, 1829, Dr. Griffith the next five, Dr. Carson the next thirteen, and the present Editor the remaining twenty-two volumes. Dr. Carson's numerous papers on *Materia Medica* and Botany, ranging through the long period of his editorship, are a fitting memorial of his connection with the work. During the service prior to 1842 the foreign selections involved much editorial labor in translating, but after that time greater facilities in the foreign mail service, and the valuable aid of the English and French journals then commenced, widened the means for selection. With the advantages thus attained, and the growing contributions of the graduates yearly scattered over the country, the present Editor, as the Assistant of Dr. Carson, commenced his career under more favorable auspices than his predecessors, and, on his accession to the Editorship, it is no matter of surprise that, with reasonable industry, the Journal, in 1853, should have doubled in size and increased in interest.

Prof. J. Faris Moore and Mr. A. P. Sharp, of Baltimore, being called upon, offered a few remarks in sympathy with the objects of the College and its anniversary, and congratulated the members on its success.

The meeting then adjourned to the main lower hall, where an ample collation was provided for the company. The time passed rapidly in genial intercourse of old and new friends, and in examining Prof. Maisch's practical laboratory, the cabinets and library in the adjoining rooms. So passed the first Fiftieth Anniversary of our College; may the second witness even greater evidences of the progress and usefulness of our Alma Mater.

Minutes of the Pharmaceutical Meetings.

At the meeting held January 17, Dr. Pile continued his problems on alcoholic menstrua, for ascertaining strength of and preparing alcohols of different percentage from a definite strength alcohol.

1st. To reduce alcohol to any desired strength.

2d. To make a definite quantity of any desired strength from a stronger alcohol.

3d. To make a mixture of any desired strength by mixing a stronger and a weaker alcohol.

4th. To make a definite quantity of any desired strength by mixing a stronger and weaker alcohol.

Answer to Problem 1st.—Multiply the quantity of the alcohol (either in fluid ounces or in gallons) by its percentage strength (Tralle's alcoholometer) and divide by the required per cent.; the quotient gives the quantity to which the alcohol must be diluted.

Answer to Problem 2d.—Multiply the required amount by the required per cent., and divide by the per cent. of the given alcohol; the quotient gives the quantity to which the alcohol must be made up by the addition of water.

Answer to Problem 3d.—Subtract the percentage of the weaker alcohol from the required per cent.; the difference indicates the quantity of the stronger alcohol to be used. Next, subtract the required per cent. from that of the stronger alcohol; the result indicates the quantity of the weaker alcohol to be used. Mix the two results together and, as the contraction will be more or less, add sufficient water to make the mixture equal to the quantity of the two liquids before mixing. For example, it is desired to prepare an alcohol of 60 per cent. by mixing an alcohol of 90 per cent. and one of 40 per cent.

60 { 40 = 20 of the 90 per cent. alcohol.
90 = 30 " 40 " "

Add water sufficient to make 50 parts.

Answer to Problem 4th.—Ascertain the quantity of each alcohol to be mixed (by Prob. 3d). The proportion which the required amount bears to the quantity thus shown will indicate the relative proportion of each alcohol to be used. Thus, if 30 parts were required to be made from the two liquids given in the previous example, as 30 is to 3-5ths of the mixture, then 3-5ths of each alcohol must be taken, or 12 parts of the 90 per cent. alcohol and 18 parts of the 40 per cent. alcohol, adding sufficient water to make 30 parts.

These rules comprise most cases which are likely to occur in preparing solutions of alcohol in water, and are interesting problems in pharmaceutical arithmetic.

Dr. Pile described a package of saffron coming under his notice in which, covering nearly half an inch of the entire surface, was a mass of small worms; in the centre was a mass (about $\frac{1}{4}$ of the whole) of small specks, which proved upon examination to be excrement of the worms.

Professor Maisch spoke of a sample of adulterated saffron with about 10 per cent. of carbonate of lime fixed to the saffron with some saccharine matter. A sample was also observed in Switzerland containing 3 or 4 per cent. of the same adulteration. Mr. Hanbury, of London, about the same time examined a specimen containing 15 or 16 per cent. of the same material fixed to the stigmas. These specimens had no suspicious appearance until placed under the lens of an ordinary magnifying glass, when the fraud was easily detected. By throwing the suspected samples into water, the carbonate of lime will fall to the bottom of the vessel, while the saffron will float. Prof. Maisch also spoke of a sample, of frequent adulteration,—carthamus and calendula having been dyed with a solution of true saffron. This sample also contained a large quantity of the styles of crocus.

Mr. McBoring spoke of the difficulty of filtering a tincture of senega after having been evaporated preparatory to making Compound Syrup of Squill, owing to the large quantity of pectin contained in the senega. The question was asked, whether bicarbonate of potassa interfered with the tartar emetic.

Prof. Maisch replied that he did not think there was any change in tartar emetic, the bicarbonate only neutralizing any excess of acid that may exist in the preparation.

Dr. Pile inquired for a practical test for glycerin, one that may be employed without delay, and with little preparation, one to be proof against the ordinary and most common adulterations. Mr. Remington, who has been making some experiments in this direction, gave as his experience, after the examination of several (8 or 10) specimens of the most prominent makers, that a glycerin which is not discolored by nitrate of silver in solution was generally pure; the nitrate will in 5 minutes show a discolorization should impurity exist. He considers that sulphuric acid is not thoroughly reliable; there is a possibility that the bottle in which it is kept contained straw, cork, or some organic matter, upon which the acid would immediately act, and possibly condemn a pure glycerin in this way. Trommer's test may also be applied to glycerin, and is entirely reliable in determining the presence of sugar.

Mr. Shoemaker produced a circular on "Ætherlidon Chloral," used in Berlin as a substitute for chloroform, without unpleasant result.

Prof. Maisch gave the results of his experiments with hydrate of chloral of different makes generally known as German. The experiments were made with a view to overcome, if possible, the disagreeable pungency found on opening almost every vial of this salt. The pungency is probably due to an excess of hydrochloric acid. Attempts were made to neutralize this with carbonate of ammonia. This seemed to overcome the unpleasantness for a short time; when, however, the bottle was again unstoppered the hydrate chloral possessed the same qualities.

A sample of crystallized hydrate of chloral was exhibited. This preparation is more permanent and may be crystallized from bisulphide of carbon. The chloral fuses by heating the bisulphide to about 60 or 65°. On cooling, the entire solution is filled with crystals. The following process was detailed: Take a half-gallon retort, with capacious neck; into this place 1 lb. bisulphide of carbon and 5 oz. of commercial hydrate of chloral; stop the neck of retort with a small piece of cotton, to prevent waste of bisulphide; place the bulb of retort in hot water; the chloral will first fuse; agitate the retort until entirely dissolved; set aside to crystallize; by keeping the neck of retort cool during process the vapor of the bisulphide when condensed will flow back into retort; by careful use the bisulphide will serve for several operations. Allow the crystalline mass to remain several hours in retort, when, with a glass rod, the crystals can be removed, dried, and are ready for use. The solution drawn off still contains chloral, which will in time crystallize. The crystals are long, needle-shaped, sometimes reaching 2 or 3 inches in length. In this form chloral is possessed of little or no pungency, and is far preferable for dispensing purposes. By placing aqua ammonia near chloral as met with in commerce, dense white clouds are formed, indicative of hydrochloric acid

Minutes of Meeting held February 21st, 1871.

Meeting called to order. Prof. Procter in the chair. Minutes of last meeting were read, and approved without alteration.

Mr. Gailard presented to the College a copy of Glauber's Chemistry, a very interesting reminiscence of chemistry and pharmacy of 200 years ago. The work dates 1689.

The thanks of the meeting, on behalf of the College, were unanimously tendered to the gentleman for his valuable contribution to the College library.

A communication from Charles Bullock was read, as follows :

A disaster, occasioned by the breaking of large show-bottles from freezing, during the late cold weather, lead to experiments to determine the congealing point of mixtures of glycerin with water, with results as follows. Common glycerin, sp. gr. 1.250=29° B., was used :

$\frac{1}{2}$ pint	Glycerin in	1 gallon of	Water congeals at	.	.	30° F.
1	"	1	"	"	.	24° F.
$1\frac{1}{2}$	"	1	"	"	.	18° F.
2	"	1	"	"	.	10° F.
3	"	1	"	remains fluid at	.	3° F.

Prof. Maisch spoke of a combination of oil of wintergreen and sesquichloride of iron as forming a very beautiful coloring material for show-bottles. Prof. Procter thought this combination was not permanent enough, as it soon lost its brilliancy by exposure to the sunlight.

Prof. Procter mentioned an article, to appear in the March number of the *Journal*, by Mr. Wharton, of Nashville, Tenn., recommending the use of carbonate of magnesia in making syrup of senega and comp. syrup of squills. The magnesia is used similarly to the process for the officinal waters, and is said to entirely overcome the objectionable cloudiness generally found in this preparation, forming, probably, a pectate of magnesia. (See page 101).

Mr. England said he had no difficulty in making a clear preparation, by percolating the senega with diluted alcohol first, then using water, evaporating the watery solution, mixing with the tincture first obtained, boiling, evaporating and allowing to settle, filtering, and adding the sugar.

Mr. McIntyre had used glycerin and carbonate of magnesia; the glycerin to prevent the extract formed by evaporating from becoming too hard and unmanageable. This preparation was pronounced to be very satisfactory.

Prof. Procter spoke of the original formulæ for comp. syrup squills, as invented by Dr. Cox, which consisted of a watery extract evaporated to syrupy consistence and combined with honey.

Mr. Gailard had used with success carbonate of magnesia in the preparation of tinct. nux vomica, which obviates any cloudiness from fixed oil.

Prof. Maisch made some further remarks upon the crystallization of chloral hydrate from bisulphide of carbon. Not being able to entirely free the crystals from the unpleasant taste and smell of the solvent, alcohol was experimented with. One half pint was used, and dissolved $17\frac{1}{2}$ ounces of chloral as fast as it was added, the mixture measuring 18 fluidounces. Prof. Maisch could not report finally on this process until the next meeting. Chloral does not evaporate as fast as is generally supposed. The difference in price between

the German in mass and in crystals is about 20c. gold on the pound, the crystals being the higher in price.

Mr. Shinn exhibited two lemons which had been wrapped in tin foil since November. On examination one of them had undergone partial decomposition, while the other remained fresh, having the characteristic odor. They could be bought when plenty at 15c. a dozen, and kept in this way for a great length of time. [This is E. Baudrimont's method, see this Journal, vol. 42d.]

Prof. Maisch exhibited some seeds of *strychnos*, structure similar to that of *nux vomica*; came as ballast from the East Indies, and were bought by a New York drug house; supposed to be from *Strychnos tieute*; fruit about size of a cherry, having six large seed. No experiments were made toward obtaining strychnia from this species.

Mr. England suggested a plan for preparing fluid ext. of vanilla, using powdered quartz in connection with sugar. This was thrown into a bottle closely corked, and boiled. By this means the aroma of the vanilla is retained, and the bean entirely exhausted.

Prof. Procter spoke of purifying residuary alcohol, and the difficulty in overcoming the odor of some substances—buchu, or cubebs, for instance. He mixed alcohol recovered from many different preparations, added 20 grs. permanganate of potassa per gallon in 3ij of water, and after a day's contact distilled; could not destroy odor of buchu.

Prof. Maisch exhibited a specimen of cherry grown as an ornamental tree in some Southern cities, but native of W. I. Islands and Panama. This plant has a very strong odor of hydrocyanic acid. Leaves margin entire; rarely so in the cherry family. Prof. Maisch pronounced this to be *Prunus* or *Cerasus occidentalis*; could be used in making cherry laurel water, and for preparing an oil similar to oil of sweet almonds, which is almost entirely derived from peach kernels.

Some remarks were made on a recent law-suit in our courts, growing out of a lot of adulterated assafœtida, which was purchased by a wholesale house in this city, to arrive, for a fair article. Upon being opened and examined it was found to be largely adulterated with gypsum. From this fact the parties refused to take it. The law was resorted to, and after a thorough examination it was found to contain in some specimens as high as 60 per cent. of sulphate of lime; the case containing the best article, when examined, proved to be composed of 27 per cent. of the same material. The case was decided for defendants after a very able charge by the judge to the jury, pronouncing the assafœtida unmerchantable.

Prof. Maisch exhibited a specimen of Tampico jalap, which comes into this market very rarely—then only as a materia medica specimen.

Prof. Procter spoke of a sample of saffron, found recently in London, containing 45 per cent. of carbonate lime.

Mr. England recommended the use of butter in making citrine ointment, being careful to free the butter from salt.

There being no further business the meeting adjourned.

CLEMONS PARRISH, Registrar.

Editorial Department.

THE SEMI-CENTENNIAL ANNIVERSARY MEETING.—Our readers are referred to page 130, for an account of the proceedings on that interesting occasion. The absence of several old members and staunch friends of the College, whose presence was expected, was regretted, and, among these, none more so than Daniel B. Smith, Elias Durand and Prof. George B. Wood. The good feeling on the occasion was unmarred by any accident, and the arrangements of the Committee, both at the meeting and at the refreshment tables afterwards, seemed entirely satisfactory and greatly to the credit of their executive ability.

COMMENCEMENT.—The Annual Commencement of the Philadelphia College of Pharmacy will take place on Wednesday evening, March 15th, at the Academy of Music. Seats will be reserved for members of the College and their families, if desired, by applying, on or after Monday, March 6th, at the store of A. B. Taylor, Secretary of the Board, 1015 Chestnut Street. Members should apply in time, as well to aid the Committee as to secure a choice of seats. Should any of our friends in other cities desire to be present, a word sent to Mr. Taylor will secure them seats.

THE ANNUAL MEETING OF THE COLLEGE will occur on the 27th of March, at 3 o'clock, P. M., at the College Hall, North Tenth Street. It was thought by some that the Semi-centennial Celebration should have been held at the usual time of the Annual Meeting, but the Board decided that the time to celebrate was the date of the inception of the idea of a Society at the first meeting, and hence the course taken. The numerous attendance at the late occasion justifies us in hoping that the members will be fairly represented in numbers on the 27th of March, on which occasion the Annual Election will take place. Members will do well to examine closely the new By-Laws, printed with Journal for January, 1870, so as to be posted on the subject.

SYRUP OF SENEKA.—The following communication was received too late for insertion among the original matter, but is printed that it may be considered along with the paper of Mr. Wharton at page 101.

“TOLEDO, OHIO, Feb. 20, 1871.

To the Editor of the Journal of Pharmacy :

Having unsuccessfully tried several formulas for preparing Syrup of Seneka as given in your Journal, I tried the following method with satisfactory result.

R Ext. Senegæ fluid, f̄iv.
Sacchari albi pulv. gross., ̄xv.
Magnesiæ Carbonatis, ̄ss.
Aquæ fontanæ, Oss.

Evaporate the extract of Seneka by water bath to f̄ii, triturate with the Magnesiæ until thoroughly and evenly mixed, add the water and filter, adding water until f̄viii have been procured; add the sugar and dissolve by gentle heat. The product will be a clear syrup that will keep well.

The fluid extract used was prepared by Campbell's process, and represented 16 troy ounces of the drug to 16 fluid ounces of the extract.

WM. J. BACHE."

CHLORAL HYDRATE.—The following note from Messrs. Morson & Son, of London, in relation to the reliability of certain statements in a paper by Mr. Mason, of Liverpool, is given a place in this number, because we have reprinted Mr. Mason's paper at page 113, and do this in justice to the parties claiming a suspension of judgment.

Messrs. Morson & Son feel it necessary for their protection to inform their friends that the statement made by Mr. A. H. Mason in a paper on Chloral and its preparations, read at the Chemists Association in Liverpool, and published in the *Pharmaceutical Transactions* for Jan. 7th, is entirely incorrect as regards the strength and purity of the Hydrate furnished by Messrs. Morson & Son, and also as regards the preparation of this substance by several eminent German makers to whom great injustice is done. Although this publication would be considered by most readers as a trade advertisement, yet its hasty publication in the *Pharmaceutical Journal* requires that it should not pass unnoticed and uncontradicted.

31, 33 & 124 Southampton Row, London.

THE NEW JERSEY PHARMACEUTICAL ASSOCIATION.—The following communication, relative to the Annual Meeting of this body, has been received from the Corresponding Secretary, Mr. Charles B. Smith:

The Annual Meeting of the New Jersey Pharmaceutical Association was held at the rooms of the Young Men's Christian Association, in Trenton, on Wednesday, Feb. 1st. Owing to the illness of the President, C. H. Dalrymple, Esq., of Morristown, Vice-President Dr. E. P. Nichols, of Newark, presided, and called the meeting to order at 10.30 A. M. The minutes of the last meeting, held at Long Branch, were read and approved.

Vice-President Nichols read the annual report, giving a history of the formation of the Association, its progress and growth to the present time.

The election of officers for the ensuing year was next proceeded with, resulting in the unanimous re election of the old officers.

The Committee having charge of the proposed Pharmacy Law reported progress, stating that the bill was in the hands of the Judiciary Committee, and would be reported to the Legislature at once, and they were quite hopeful of its becoming a law at an early day.

The members present all expressed themselves very much in favor of the bill, believing that the time had now come when the interests of the people as well as their own demanded a higher and better established standard of moral and educational qualification for persons engaged in the practice of Pharmacy.

It was decided to hold a special meeting at Long Branch, on Wednesday, August 16th, in addition to the regular annual meeting, to be held in Trenton in February, 1872.

We understand that strong opposition is made to the bill by certain physicians, because of its requiring *all* to submit to examination who hereafter propose to open apothecary stores, claiming that they should be exempt and at liberty to open as many stores as they choose.

MONUMENT TO DR. W. T. G. MORTON.—Certain citizens of Boston and vicinity, believing that the late Dr. Morton has a rightful claim to be considered

"the inventor and revealer of anæsthetic inhalation," have erected a monument to his memory in Mount Auburn Cemetery, and have transferred it to his family as a mark of gratitude to his memory. If the inscriptions on this monument are the *truth*, then was Morton deserving of this and higher honors; but there are many who believe with equal sincerity that the true "inventor and revealer of anæsthetic inhalation" was the late Dr. Horace G. Wells, of Hartford, Connecticut. If it be true that to conceive the idea of avoiding pain by inhalation, and successfully to submit to the process, be a test, then, surely, to the memory of Dr. Wells must accrue the honor of directing the world to anæsthesia in surgery. The failure of the experiment at Boston is now known to have been accidental, as nitrous oxide has everywhere been proved to possess the power Dr. Wells claimed for it before the medical tribunal at that city. The enterprise and perseverance of Dr. Morton, in finding a more manageable anæsthetic deserves a just and fair reward; but it should not exclude from a higher award the claims of Dr. Wells as the genius who first demonstrated practically anæsthesia in surgery.

LAW VS. LATIN.—According to the *Boston Med. and Surg. Journal*, the Legislative fathers of that classical centre are becoming surfeited with the language of Cicero, and will have none of it. It appears that a proposition to compel physicians to write their prescriptions in English has been before the Legislature, but has been stopped by representing the true nature of the question in a candid and straightforward manner. It is a satisfaction to learn that the law-makers manifested so much good sense.

THE REGISTRY LAW IN BALTIMORE. We cut the following from the *Baltimore Sun*, as indicating that the new law for sustaining the better education of apothecaries in Baltimore is not a dead letter:—

A Druggist Heavily Fined.—R. H. Laurence, a druggist, doing business in the western section of the city, was arraigned before Justice Bride, yesterday, by policeman Quinn, upon the charge of prosecuting his business without being registered, and without having undergone the examination required by an act of the General Assembly, passed in 1870. He was fined fifty dollars and costs.

THE BUSINESS EDITOR OF THIS JOURNAL.—In our February editorial notice of the appointment of Mr. WOLLE, we accidentally wrongly stated his business hour at the College. We now say that it is between 10 and 11 o'clock, A. M., daily, at the College Hall, 145 North Tenth Street. The notice on the cover will give particulars in reference to advertisements

ERRATUM.—In the last line of page 58, February number, read Aq. f3vij, instead of f3ij. Readers will please make the correction.

Proceedings of the American Pharmaceutical Association at the 18th Annual Meeting, held in Baltimore, Md., September, 1870; also the Constitution and Roll of Members. Philad.: Sherman & Co., printers, 1870. 352 pp. Octavo.

This volume was received from the Secretary on the 11th of February. The

Editor and Committee had fully expected to be able to publish the work before the end of the year 1870, but the phonographic reporter failed to render the first part of his report until the 27th of October, and the last portion until the 23d of November, more than two months after the meeting; hence the printer was left waiting all that time, as the minutes involving that report had to appear first in order. If it be possible, some understanding should be had with the reporter for the prompt preparation of the manuscript in future.

In our November issue such a full notice was given of the meeting that it is not necessary to go over the ground as regards the minutes, and we have already printed several of the special reports. It remains to notice the Report on the Progress of Pharmacy. This document occupies 96 pages, and in its general aspects is framed like several that have preceded it, but is about 60 pages less in extent than the report of 1869, and less elaborate in its details. The plan of giving a skeleton of papers is a great improvement on the earlier plan of a mere repetition of their titles, and enables the reader to form an idea of their scope and interest, and makes the work very suggestive to the reader and inquirer.

The report is creditable to the Association, and a worthy addition to the labors of Dr. Mahla, previously published.

The official report on the exhibition of specimens at Baltimore, varies somewhat from that published by us in November, from the newspapers, yet does not very essentially differ. This is followed by the address to the North German Apothecaries Association on the occasion of their 50th anniversary, prepared and forwarded by the Committee—Dr. Hoffmann, Prof. Maisch and Mr. Sargent. The final chapter embraces the laws relating to the practice of Pharmacy passed in the United States during the year 1870. These are three in number: one by Rhode Island, embodying the chief provisions of the draft of a law offered in the proceedings of 1869, included in 13 sections. The second is the Baltimore law, passed by the Maryland Legislature, containing 9 sections, which is also a registry law, and requires that no person not in business at the passage of the act, and registered under the act, shall, after its date, open a store for the dispensing of medicines without a certificate of efficiency from the commissioners appointed under the law, unless said person has a diploma from a college of pharmacy, based upon a regular apprenticeship to the apothecary business. Already, as noted above, this act has been carried into effective operation.

The third law was passed by the Legislature of Pennsylvania, in March, 1870, and is entitled "*An Act to Prevent and Punish the Publication of Obscene Advertisements and the Sale of Noxious Medicines.*" This law is aimed at that class of advertisers and medicines that relate to venereal diseases and the production of abortion, as well as to those apothecaries who aid and abet by selling quackeries intended for the last base purpose, and has a penalty not exceeding 1000 dollars, and imprisonment not exceeding 6 months. The law excepts medical illustrations used in the tuition of regular medical colleges and those in standard medical books.

This law has already greatly improved the character of the newspaper advertisements against which it was directed.

In conclusion, it may be stated that the paper and typography are excellent, and that the volume is creditable to the Editor and Committee.

Braithwaite's Retrospect of Practical Medicine and Surgery. Part lxii. January, 1871. New York, W. A. Townsend & Adams, Publishers. 1871. Three hundred and six pages, octavo.

The Half-Yearly Abstract of the Medical Sciences.—Being a digest of British and Continental Medicine, and of the Progress of medicine and the collateral sciences. Edited by William Domett Stone, M. D., F. R. S. C. Vol. lii. January, 1871. Philadelphia, Henry C. Lea, Publisher. 1871.

These excellent standard serials are full of valuable abstracts from the journals. Recent information on New Remedies—Chloral, for instance, especially in the direction of therapeutics—is abundant.

The Oregon Medical and Surgical Reporter. Vol. i. No. 12. December, 1870. Edited by H. Carpenter, M. D., assisted by the medical faculty of Willamette University, Salem, Oregon.

This Journal is published where, a few years ago, the expedition of Mr. Nuttall found a savage wilderness. Thus, after the pioneer, come the results of an advanced civilization, and testify to the far-reaching influence of that liberty of action under a benign government which enables men, acting under laws of their own creation, to extend the circle of their influence.

OBITUARY.

CHARLES GUSTAVUS BISCHOF. This well-known German chemist and geologist died at Bonn, in Rhenish Prussia, on the 30th of November, 1870. According to the *Times*, he was born near Nuremburg, in Bavaria, on the 18th of January, 1792, and was educated at the University of Erlangen, where he studied chemistry and became one of the most distinguished pupils of Prof. Hildebrandt. In 1819 he was appointed Prof. of Chemistry and Technology in the University of Bonn.

Bischof was an enthusiastic geologist, and has written various works on subjects pertaining to his favorite science. That by which he is best known here, and which was translated and published by the Cavendish Society of London, is "Elements of Chemical and Physical Geology."

SAMUEL D. HENDEL, a prominent pharmacist of St. Louis, Missouri, died on the 23d of January, at that city, at the age of 39 years and 6 months. Mr. Hendel was born at Carlisle, Pennsylvania, and learned his business with the late Henry C. Blair, of this city, and graduated at the Philadelphia College of Pharmacy in 1852. He subsequently settled in St. Louis, and became a member of the firm of Leitch & Hendel. Mr. Wm. H. Crawford, of St. Louis, to whom we are indebted for information relative to the deceased, informs us that "he was much respected in that city, and known to be thoroughly posted in his business, which he conducted here for many years."

Mr. Hendel was a member of the American Pharmaceutical Association. He died suddenly at his store, of apoplexy, having had two previous attacks within two years. He leaves a widow, the daughter of Mr. Jesse Arnot.

EUGENE L. MASSOT, an eminent pharmacist of St. Louis, Missouri, died on the 14th of February, having been born in October, 1823. The following communication, from Mr. Primm, gives an idea of the public estimation in which the deceased was held:

RESOLUTIONS OF RESPECT.

At a special meeting of the St. Louis College of Pharmacy, held at Polytechnic Building, February 16th, the following proceedings were had, concerning the death of Mr. Eugene L. Massot:

The meeting was called to order by Mr. Wm. H. Crawford, and Mr. Hubert Primm was appointed Secretary. After remarks eulogistic of the deceased member's services and character, by Messrs. Alexander, Crawford and Primm, the following resolutions were unanimously adopted:

WHEREAS, the death of Mr. E. L. Massot having been announced to this College, we feel it our privilege and duty to give some expression to our deep sense of his loss and our affectionate respect for his memory. Therefore, be it

Resolved, That we bear most willing testimony to his faithfulness and devotion in promoting the interests of this College, he being one of its most thorough friends, who, at all times, spared no trouble and thought no labor too great to advance its interests. The records of this institution recite the confidence placed in him by its members. Filling successively the offices of President and Vice-President, he gave to each position that careful attention so necessary for the successful workings of such an institution as ours is. His blameless and consistent life, his amiable and genial disposition, and his eminently attractive social qualities, rendered his society sought for not only by members of his profession, but by all who came within the sphere of his acquaintance.

Resolved, That we will attend the funeral and cordially unite in every token of respect to his memory.

Resolved, that a copy of these resolutions be presented to the family of the deceased, and that the pharmaceutical journals of the country and the city press be requested to publish the same.

WM. H. CRAWFORD, President.

Hubert Primm, Secretary.

DR. SHERIDAN MUSPRATT. The *Pharmaceutical Journal* for Feb. 11th announces the death of this Chemist at his residence in West Darby, England, at the age of 50 years. Our space will not admit of a further notice at present.

Advertisements omitted from the Advertiser.

WANTED—In a drug store, doing a large and active business, a Pharmacist, acquainted with trade in the Interior Counties of this State. A graduate of the Philadelphia College of Pharmacy, who can speak German and has satisfactory references, would be preferred. Address W. S. T. This office. 145 N. Tenth street. 1 t.

WANTED—By a Graduate in Pharmacy, who speaks German, a suitable situation in a Prescription store in the South or West.

Address J. C. W., care of JAMES T. SHINN, Spruce and Broad Sts. It

THE AMERICAN JOURNAL OF PHARMACY.

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ON BENZOATING OINTMENTS EXTEMPORANEOUSLY.

BY CHARLES F. BOLTON.

An Inaugural Essay.

The subject of benzoin in ointments has for some time past attracted the attention of the profession, and there is nothing in the whole range of Pharmacy that gives more satisfaction than a perfect ointment, not only to the druggist who dispenses it, but also to the physician who prescribes, and the patient who uses it. There is nothing that reflects more credit on the Pharmacist than an elegant and well dispensed ointment. To accomplish this requires not only experienced manipulation, but something more ; it needs that the unctuous matter should be fresh and free from the least trace of rancidity ; it should not only be this way when dispensed, but if possible should be made in such a manner that it would remain in a perfectly sweet condition for a considerable length of time, thus affording the patient an opportunity of using the whole of the ointment in a sweet state. This can be effected in many instances by using the officinal unguentum benzoini as the base of the ointment, but often the physician directs the ointment to be prepared and benzoated extemporaneously. To benzoate the ointment by the officinal process involves time, but by the plan that I suggest it can be accomplished in a very short time without the aid of heat, thus saving a great deal of time and trouble. In many instances time is quite an important object. The formula that I have decided upon, after making several experiments, is as follows :

℞ Benzoin pulv. (select.) ʒij.
Ether sulphuric ʒiv.
Ol. Ricini ʒj.

Introduce the benzoin into an eight ounce bottle, add the ether,

macerate for twenty-four hours with frequent agitation, pass through a filter, to the filtrate add ol. ricini, and shake until dissolved; then transfer to a shallow vessel in order to allow the ether to evaporate spontaneously; lastly, when the ether has entirely disappeared, place in a wide-mouthed bottle ready for use. With a view to economy I experimented with alcohol and benzine as solvents; the former of the specific gravity .817 gave moderate satisfaction, the result being of a much darker color, owing to the foreign matter in the benzoin being more soluble in alcohol than in ether; this I considered a serious objection, as it discolored the ointment considerably, while that made with the ether did not, at least not more than if it were benzoated by the officinal process. The benzine experiment, however, was a complete failure, it extracting from the benzoin only a very small amount of benzoic acid, leaving entirely undissolved the resin, cinnamic acid, and volatile oil. The result from the formula that I have given is of the consistency of a soft extract, one ounce of the extract fully representing an ounce of the benzoin in a state that is perfectly miscible with unctuous substances. I benzoated several ointments with this extract in the early part of last April, and allowed them the greater portion of the time to be exposed to the atmosphere, and when I examined them in the fall I could find none of them oxidized in the least, and in the case of ung. hydr. oxidi rubri the bright orange color was perfectly preserved. I also used it in several prescriptions and it always gave perfect satisfaction. I used it in the proportion of half dram to the ounce of ointment; it can also be used very advantageously in preparations for the hair, it being very soluble in alcohol and perfectly miscible with ol. ricini in combination with alcohol, but insoluble in the fixed and volatile oils in a free state. It is also freely soluble in chloroform.

NOTE ON AMYLO-NITROUS ETHER.

BY JOHN M. MAISCH.

Mr. C. Umney* has recently examined three specimens of nitrite of amyl as met with in the English market, and found them all to be impure, one containing in fact very little of the true nitrite. This new remedial agent has also attracted some attention in this country; to what extent it is made here I have no means of ascertaining, nor

* Pharm. Journ. and Transactions, Nov., 1870, p. 422.

am I prepared to give an opinion of the purity of the few samples I have seen. Since, however, its preparation is rather tedious, and since it is very apt to be contaminated with other ethers, the requisite care and precautions are probably not always applied.

Having had occasion, some time since, to prepare it repeatedly for medicinal purpose, the following remarks are offered as indicating a way of making nitrite of amyl on a convenient scale. Mr. Umney prefers the process of passing nitrous (hyponitric) acid into amylic alcohol. I regard this process as unnecessarily complicated, since purification by fractional distillation cannot be avoided as demonstrated already by Rieckher.* According to Bunge,† $5\frac{1}{2}$ oz. amylic alcohol require from eight to nine hours, before becoming completely saturated with nitrous acid; volatile products are given off, and the residue contains nitrite and valerianate of amyl besides a black non-volatile body, crystals of nitrate of ammonia and probably nitrate of amyl. The process, which was first suggested in 1844 by Balard, it seems to me will answer all requirements, if the observations of W. Hoffmann‡ regarding the formation of nitrate of amyl are not disregarded; ethyl-amylic ether, amylic aldehyde and hydrocyanic acid are likewise formed.

Of the three last named compounds, the hydrocyanic acid is readily removed from the distillate by treatment with an alkali, which also separates any nitrous and nitric acid that may have come over. The aldehyde has its boiling point at 93° C. (Kopp) and the ether above 110° C. These figures indicate the necessity of the cautions recommended by Balard, Hoffmann, Rieckher, &c.

It is advisable to use only rectified amylic alcohol, since the previous removal of ethylic alcohol is much easier than the removal of the products after the reaction with the nitric acid has been completed. This purification is most readily and economically effected by Hirsch's method,§ with solution of table salt and subsequent distillation with water.

The purified amylic alcohol with about an equal bulk of nitric acid is introduced into a capacious glass retort, and a moderate heat is applied and very gradually increased. As soon as the mixture ap-

* Jahrb. f. pr. Chem. xiv, p. 1.

† Krit. Zeitschr. ix. 34.

‡ Ann. Chem. und Pharm. lxxv, 363.

§ See Amer. Jour. Pharm., 1862, p. 139, 328.

proaches boiling, the fire is removed and the reaction allowed to continue. If the application of the heat has been too rapid or too long continued, considerable frothing occurs and the contents of the retort are apt to foam over. With a moderate and slowly increased heat, the reaction is less violent and the temperature rises gradually, after the removal of the fire and the beginning of boiling. As soon as the thermometer, inserted into the tubulus, rises above 100° C. (212° F.) the receiver is changed, the distillate now becoming more and more mixed with ethyl-amylic ether and nitrate of amyl, readily perceived by the change in odor.

The distillate obtained below 100° C. is now agitated with an aqueous solution of caustic or carbonate of potassa, to remove free acids, and after separation the oily liquid is introduced into a clean retort and again slowly heated. The first portion coming over contains the amylic aldehyde. When the very slowly increased heat has risen to 96° C., the receiver is again changed and the distillate now collected as nitrite of amyl, until the thermometer reaches 100° C., when the distillation is stopped.

It will be observed that the process for the preparation of this compound consists of two distinct operations: first, the production of the amyl-nitrous ether, and, secondly, its purification. In both operations the *very gradual* application and increase of heat is very essential. The yield is small; not having kept any record of the yield, I am unable to give the per centage obtained. All the amylo-nitrous ether dispensed by me was made by this process.

After the publication of Redwood's process for spirit of nitrous ether,* it was repeatedly tried with entirely satisfactory results, and the idea naturally suggested itself to apply the same process to the similar compound amylo-nitrous ether. Accordingly amylic alcohol was mixed with sulphuric acid, the mixture introduced into a retort together with some copper wire, and, after cooling, nitric acid was added. In a very few moments the evolution of gas was observed, the liquid became hot without the external application of heat, and the reaction very rapidly increased to such a violence that the entire charge was lost, it being impossible to condense any vapors in a Liebig's condenser, or to retain much of the liquid forced over, in the receiver. The experiment was never repeated.

* See Amer. Jour. Pharm., 1867, p. 330.

Nadler* gives a process which he says readily yields the pure nitrite; it having come but lately under my notice, I am not prepared to speak about its merits; it consists in distilling amylo-sulphate of potassa with nitrate of potassa.

The composition of the nitrite of oxide of amyl is $C_{10}H_{11}O, NO_3$; it appears to me that we ought to discontinue this long name, as well as also nitrite of amyl. Amylo-nitrous ether expresses the chemical relations of this compound, and the similarity of names also indicates its analogy to the officinal ethylo-nitrous ether, which may well be continued to be called nitrous ether, just like ethylic alcohol and all its direct derivatives are called by their generic names merely—alcohol, aldehyde, ether—without any prefix.

THE DOCTOR AND THE APOTHECARY.

BY WM. L. TURNER.

The relation to each other of doctor and apothecary has been a subject of considerable comment, generally assuming the character of a two-sided question, the affirmative or negative of which has depended mainly upon the sympathies or pecuniary interests of those who have entered into the discussion. It occurs to mind, however, that it is a question differing somewhat from the one as to "which side of the jug the handle should be on," differing in the fact that a third question is necessarily involved. It is no uncommon thing, on the one hand, to hear urged against apothecaries the complaint of "prescribing over the counter," as though the pecuniary interests of physicians were the only matters or interests with which apothecaries had to deal, entirely superseding their own or that of their patrons; while, on the other hand, apothecaries complain of physicians for prescribing special articles and special establishments, as though it were the paramount duty of physicians to see that every one who chose to start a drug store should be properly sustained and supported, entirely ignoring the important fact that those from whom both derive their support, and for whose benefit only either becomes a useful appendage to society, have rights, which not only entitle them to some consideration in determining this question, but which both are bound to respect; for instance, it is simply absurd to say that an apothecary

* Ann. Chem. und Pharm. cxvi, p. 176.

should not recommend a simple remedy for a cough, when the person requesting the same can purchase anywhere a remedy for which he has no other guarantee than an advertised list of wonderful cures; or it is equally absurd to suppose that a physician is in duty bound to prescribe only such remedies as he may know or even suppose to be in every drug store, without regarding the requirements of his patient, or his own choice.

But this question of relation to each other does not end here, but assumes another phase, and has become to some extent involved in the issues existing in the medical profession—differences too frequently only of opinion, which in some instances have no better foundation upon which to build than the hobby of some one remarkable only for having a hobby. There may be those who prefer to be free to act out their part upon the stage of life free from the restrictions or supposed technical proprieties of organized associations, or associated organization, who may by choice prefer, or by necessity be compelled, to work out the problem of life, or ascend the hill of fame, depending exclusively upon their merit or good fortune. There may be others who prefer to surround themselves by such influences and conventionalities as they may deem essential or politic; or deem it of more importance to transmit a fame acquired by others, than acquire fame themselves. What have apothecaries to do with these divisions, that they should array themselves on the side of one and against the other? Is there any necessary connection between the doctors and apothecaries, that will justify a sympathy on the part of the latter with any preposterous proposition, or absurd abstraction, that may tend to concentrate the few or separate the many of the former? I know that various attempts have been made to create an impression that Pharmacy is merely a collateral branch of, or dependent attachment to, medical science. To such an extent has this attempt been made in some localities that medical men have assumed to prescribe under what legislative restrictions Pharmacy should exist. This attempt has not been made by medical men only; pharmacists themselves, in some instances, have taken up the cudgel and battered away in defence of some pet theory of medicine, thus identifying themselves with this, or following in the wake of that, as though it were a proper subject of investigation, where pharmacy should be located or to what subdivision of medicine it should be attached. Is pharmacy to be confined to one or more beaten paths? Shall it be

denied the privilege of entering newly opened avenues and positively forbidden to open any itself? As astronomical science knows no bounds, but embraces the universe, so let pharmacists at least regard medical science as embracing all medical knowledge.

ON A NEUTRAL CRYSTALLIZABLE PRINCIPLE IN BLACK SNAKE ROOT—(CIMICIFUGA RACEMOSA.)

BY T. ELLWOOD CONARD.

An Inaugural Essay.

As this plant is a very common one, and has been fully described in articles heretofore written, I will not enter into any description of it, but merely state the condition of the root acted upon; and of the very many experiments made I will give those only which resulted most satisfactorily.

In order to get the advantage, if there should be any, in using the perfectly fresh root, I obtained it in this way directly from the ground. It was dug in the latter part of July, at which time the roots were quite well developed.

A portion of these, thoroughly cut and bruised, were put in a still with water, and a varied and continued heat was applied, but without producing in the distillate any perceptible amount of volatile principle. The addition of liquor potassa to the mixture and redistillation was tried, which also failed to develop a volatile oil or other substance; there was no separation of anything from the water which distilled over, nor had it any taste or smell, except an earthy, rooty taste, characteristic of any inert vegetable matter. From these facts we infer the root does not owe its active properties to the possession of a volatile substance.

The next experiments I will give in outline. Three and a half pounds of the root, cut and bruised, were treated with four and a half pints of strong alcohol by maceration for four weeks and filtered. Two pints of this tincture was treated with three fluidounces of the solution of subacetate of lead, which completely precipitated the resin, tannin, etc., and most of the coloring matter, as will be seen below. The lead was separated from the filtered liquid by means of sulphuretted hydrogen in excess; after agitating for some time together, filtered. A repetition of the process proved the solution to be entirely free from resinous or gummy substances, also from much coloring

matter. The tincture was set aside and allowed to evaporate spontaneously. The resulting powder was treated repeatedly with benzine. The several washings were mixed and evaporated, yielding a minute portion of a disagreeable, nauseous, fatty substance without color. The powder was freed from the odor of benzine, placed on a filter and thoroughly washed with water; then dried and dissolved in sixteen times its weight of strong alcohol, forming a saturated solution. This was mixed with one hundred and twenty grains of pure alumina, moistened with a few drops of water, and agitated for twenty-four hours. Then put in a capsule and evaporated spontaneously to a very dry light mass. This was put on a filter and hot alcohol poured on it until entirely exhausted. This was allowed to evaporate, and there remained a crystalline substance of a light yellow color, not of a very regular or decided shape, but of a massy appearance, resembling almost exactly the crystals of sulphate of alumina on a small scale. But under the microscope, at a low power, their crystalline form was more distinct, presenting an appearance similar to that of rock candy. This substance in powder has little taste, on account of its extreme insolubility in the liquids of the mouth. But its solution in alcohol has the intensely acrid and sharp taste that characterizes recent *cimicifuga*.

The crystals have the following characteristics: They are very soluble in cold alcohol, more so when heated. Dissolve readily in dilute alcohol, also in chloroform, and slightly in ether; but are entirely insoluble in benzine, turpentine and bisulphide of carbon. Fusible at a moderate temperature, at a higher taking fire, and at a red heat entirely dissipated.

This substance, from the following experiments and their results, appears to be a neutral principle:

A small quantity moistened on a jar lid with liquor potassa, and approached with the stopper of a muriatic acid bottle did not give off the characteristic white fumes of a volatile alkaloid, nor did it produce fumes when heated with liquor potassa and brought near muriatic acid, as an ordinary alkaloid. A small quantity with liquor potassa put in a tube with a small outlet, was gently heated, but no odor of ammonia was given off. Reddened litmus paper remains unchanged by continued contact with its solution. Entirely incompatible with all acids refusing to unite with them in any form or proportion. These few facts point very strongly to the conclusion that it is neither an

alkaloid nor an acid principle, being entirely indifferent to the alkalies and not reddening litmus paper. The therapeutic properties of this substance have not been ascertained.

ON THE USE OF LIQUID CAOUTCHOUC AS AN ADDITION TO
EMP. BELLADONNÆ AND OTHER PLASTERS.

BY J. WILLITS WORTHINGTON.

The author has treated this subject at some length in his Inaugural Essay before the Philada. College of Pharmacy, from which we abstract the following :

Much difficulty has been experienced by pharmacutists in preparing belladonna plaster so as to retain its adhesiveness when kept ready spread for some time. The proposed improvement consists in the addition of india rubber used in the form of a solution, made as follows :

Take of pure Caoutchouc, cut in small pieces,	an ounce.
Benzine (from Petroleum),	a pint.

Macerate with occasional agitation in a suitable stopped, wide-mouthed bottle until a thick, saturated solution is obtained. To prove its efficacy in preserving the pliability of plasters, the author prepared a mixture of 3 ounces of Burgundy pitch, 4 drams of yellow wax, 2 drams of rosin and 2 drams of lard. Melted and strained. This, when spread and kept two months, became very brittle and cracked on handling.

The same ingredients, with the addition of 4 drams of liquid caoutchouc incorporated when they were in a fused state, possessed the following characters :

Very little tendency to crack, retains its pliability, is more adhesive, and has a beautiful, smooth, glossy appearance. After two months, part of it very cold weather, this plaster retained its pliability.

Experiments were then made with officinal belladonna plaster, which resulted in the following proportion being considered most suitable :

Take of Belladonna plaster (U. S. P.),	seven drams.
Liquid Gum Elastic,	one dram.

The belladonna plaster to be melted by a water-bath, and the liquid rubber then added and stirred well until united thoroughly.

The odor of the benzine disappears when the solution is added in this way. It is quite important to avoid an excess of heat, and hence the water-bath is recommended.

Liquid rubber will be found to act admirably in all plasters which may be made to keep through the summer.

CALOMEL.

BY OSCAR OLDBERG, Professor of Pharmacy, Washington, D. C.

It is a rule, generally adopted by compilers and revisers of pharmacopœias and pharmaceutical formularies, to select, for officinal works, such formulæ and processes as will be most practicable to the pharmacist proper. Pharmacopœias are not written for wholesale manufacturers. For such preparations as can be more profitably prepared on a large scale, no officinal formulæ are, therefore, given in many pharmacopœias; and out of two processes, which both give an equally good product, we should certainly prefer the one which is most economical and least troublesome.

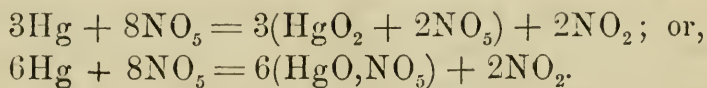
I do not believe that our national pharmacopœia has done wisely in the selection of its formula for the preparation of the mild chloride of mercury. The process in question is too troublesome to be adopted, even to a small extent, by the apothecaries; and, besides, there exists another formula which is more convenient, while, at the same time, it gives also a more beautiful product. The process of the U. S. Ph. is familiar to us all. The other method is officinal in several foreign pharmacopœias, among which may be mentioned those of Sweden and of Saxony. The U. S. Dispensatory seems, however, to ignore it altogether, though it is nearly a century old, and has been considerably improved since first brought into notice by Scheele. It directs the preparation to be made by precipitation.

Professor Wood, after speaking of Wöhler's wet process, adds: "This form of calomel is of doubtful utility; and, when obtained by Prof. Wöhler's process, it is a crystalline powder, which is a fatal objection to it." Is not the sublimated calomel made according to officinal directions of the U. S. Ph. also crystalline, and as fatally objectionable? The products of both these formulæ must undergo a tedious process of levigation and elutrition, to enable us to reduce them to an impalpable powder, and free them from the contamination of bichloride.

The British process, when carried out by experienced hands, is a good one, but by far too troublesome. The truth is that nearly every pharmacist purchases his calomel from the wholesale druggist, which is by no means advantageous to the art. It is obvious that we must either follow the British formula or fail to compete with the British, as long as no better process is presented to us than the one now official in our country. I think it might have been just as well not to give us any formula at all, but to simply direct us to purchase the preparation as obtained by Jewell's or Soubeiran's processes, (or rather Henry's and Mohr's,) and to test that conscientiously before using it, although Prof. Wood thinks it is "free from all suspicion of containing corrosive sublimate."

Let us have, when such a thing is possible, practical formulæ which will be adopted by a greater number of apothecaries.

When metallic mercury is dissolved in nitric acid, the resulting salt is, according to circumstances, either a protoxide or a peroxide salt.



When the acid is warm, concentrated and in excess, the peroxide salt is formed; but when it is cold, dilute, and in a less quantity than is necessary, in order to dissolve all of the metal, the result is a proto-salt. Therefore, also, if a solution of a mercurial persalt is macerated with metallic quicksilver, some of the metal is taken up which reduces the peroxide to a protoxide.

The salt which is obtained, when dilute acid acts on the metal at a moderate temperature, is the neutral protonitrate, and can be obtained in a crystalline state; according to the younger Mitscherlich, some basic salt may be simultaneously produced, if the metal is present in great excess, and the maceration is allowed to go on for a longer period. When a more elevated temperature is applied, a neutral proto-salt (together with more or less per-salt) is *first* formed, but, under the continued dissolution of the metal, more and more basic salts are successively generated.

All those salts are soluble, in certain proportions, in water, but decompose upon a further addition of that solvent, so that a yellow overbasic salt falls, while an acid one remains in solution. But, if free acid be added to their solutions previous to dilution, no precipitate or decomposition will take place.

Applying these preliminaries, we will soon arrive at a working formula for calomel, which, from experience, I do not hesitate to recommend as preferable to the process of the U. S. Ph.

One pound of pure nitric acid (spec. grav. 1.25) is put in a matrass, heated by means of a sand-bath, and one and a half pounds of mercury (or an excessive quantity) is added. They are warmed together first until no more red fumes are evolved, and afterwards the digestion is continued for one hour more, or until the liquid begins to become discolored or yellowish, when the matrass must be at once removed, and the contents transferred to a capacious evaporating-dish. The solution now contains a basic proto-nitrate. (The digestion must not be interrupted, because crystals may deposit which are afterwards very difficult to re-dissolve.)

To the warm concentrated solution in the evaporating-dish is now added, without delay and during constant agitation, a boiling hot mixture of twelve pounds of distilled water and half pound (more) of the nitric acid. This free acid is added, in order to prevent subsequent precipitation of basic salt when water is mixed with the solution. The mixture, thus diluted and made sour, should now be tested, to ascertain that it can be further diluted with water without decomposition, because, otherwise, basic salt may be thrown down with the calomel when the solution is finally added to the dilute hydrochloric acid. The solution is next filtered, to free it perfectly from all basic salt which may be undissolved. (This operation is, of course, not performed until the liquid has first become cold.)

The precipitation now follows by pouring the clear, cold, filtered solution of basic protonitrate of mercury into a mixture of one and three-quarter pounds of hydrochloric acid, (spec. grav. 1.18,) and twenty pounds of water, stirring uninterruptedly. The precipitate is washed by decantation, and the washing afterwards finished on a filter. It is necessary that the mercurial solution should be added to the dilute acid, and not *vice versâ*, in order to prevent the possible contamination of the preparation with protonitrate.

The preparation obtained in this manner is a snow-white impalpable powder, which, if it has been well washed, is as perfectly free from bichloride and basic nitrate of mercury as Jewell's hydrosublimate of mercury.

PHARMACEUTICAL TITLES.

BY THE EDITOR.

The value set upon titles varies much with individuals; so much, indeed, that many will work more earnestly for a title than for more important things. If their possession carried with it the knowledge and dignity which, sometimes, it is presumed to represent, then titles might well be sought for as desirable evidence of accomplished work. Unfortunately, in very many instances, there is no such relationship. An esteemed correspondent in a neighboring city writes: "There is quite a discussion going on here about the title proper for graduates. Some agree that 'Doctor in Pharmacy' would be most correct, but others consider that improper, 'because not usual.' It would be interesting to have an opinion expressed in your Journal," &c.

Accepting the invitation, we will suggest that it is desirable to avoid the adoption and use of any titles, for common use by pharmacutists, that will conflict with those of the medical profession. Pharmacy is, to a large extent, an *Art*, which every well-qualified apothecary masters. Its pursuit involves so much scientific knowledge, that it may very properly be called a profession, and he who properly practises the art is a *Master in Pharmacy*. This title, however, should not be given to the major part of graduates, as they now issue from our schools of pharmacy, who should be satisfied with the probational title of *Graduate in Pharmacy*, (or, perhaps, *Bachelor in Pharmacy*,) until, by a certain length of service as assistants or principals, they acquire that thoroughness arising from experience and responsibility which justifies them in assuming the title of Master in Pharmacy. Whether this assumption should be preceded by another examination and certificate, or whether the lapse of a given time in the practice of pharmacy should be considered sufficient, would be questions for the Faculty to decide. Our own opinion is that the title would carry more weight with the public, and be more esteemed by the owner, if it had been properly earned and certified to by authority. When, however, the title Doctor in Pharmacy is not intended for every-day use, but is made entirely *honorary* and its being conferred on an individual is intended to express the favorable appreciation, by the conferring body, of his labors, or qualities, or acquirements, its use is not obnoxious to the objection above stated, any more than is the honorary title of LL.D. to the various classes of persons who have received it from our Universities.

Let our young men, therefore, be moderate in their desire for titles, until thoroughly deserved; let "excelsior" be on their motto; and let our Institutions, by proper examinations, and by giving titles only to the deserving, screen out the incompetent, probationize the mediocre as graduates or Bachelors, and elevate the qualified and intelligent student to a Mastership in Pharmacy. Such of the graduates as could subsequently raise their *status* by earnest study and skilful practice should be eligible for the Mastership, to be attainable by an examination.

It is time that the line of distinction between pharmacutists and wholesale druggists, in regard to educational requirements, should be clearly drawn. It is wrong to expect a druggist to know the numerous practical details of a dispensing business when he has had no opportunity to acquire them; and it is doubly wrong, in the absence of this knowledge, to consider him eligible for the diploma of a pharmacist, which he may attain by dint of study and cramming. The druggist should have a proper diploma for his attainments in chemistry, materia medica and manufacturing pharmacy, but he should not receive a certificate asserting his having served an apprenticeship to the apothecary business, and is qualified to conduct it.

PHARMACEUTICAL NOTES.

BY W. RANSTEAD JONES.

Editor Amer. Jour. Pharmacy:

Dear Sir:—I beg leave to submit the following to your consideration, for the benefit of the craft, for the extemporaneous preparation of

Tinctura Opii Camphorata.

Take of Tinct. Opii,	.	.	℥ijj	℥ijss.
Spts. Camphoræ,	.	.	℥j	℥ijj.
Ol. Anisi,	.	.	℥ij.	
Acid. Benzoic.,	.	.	℥ij.	
Alcoholis,	q. s. ft.	.	Oij.	Mix.
Mel. Despumat.,	.	.	℥iv.	troy.
Aquæ,	q. s. ft.	.	Oij.	

Mix the two solutions together, and filter through paper. Of course the tinctures are to be of the officinal strength. The actual relation of camphor and opium in this and the officinal recipe is as follows:

	<i>In my formula.</i>	<i>Formula 1866, U. S. P.</i>
Camphor, . . .	grs. 82½.	grs. 80.
Opium, . . .	grs. 123¾.	grs. 120.

The other ingredients are identical in quantity.

Aromatic Essence of Ginger.

R	Ginger, . . .	℥xii.
	Cinnamon, . . .	℥i.
	Cardamon Seed, . . .	℥ss.
	Cloves, . . .	℥ij.
	Capsicum, . . .	℥j.

All in moderately coarse powder.

Alcohol, Oiv.

Proceed as directed for Tr. Zingiberis.

The above makes a very agreeable form of tinct. of ginger.

I would also suggest that some suitable character or sign be used to denote either ℥ or ℥ different from the one now used. I find many of the errors in prescriptions are caused by the confounding or indistinct writing of the two characters ℥ and ℥.

Mt. Airy, Philada., Feby. 24, 1871.

GLEANINGS FROM THE GERMAN JOURNALS.

BY JOHN M. MAISCH.

Oil of Rue.—A. Giesecke observed that the crystalline mass obtained by shaking oil of rue with bisulphite of carbon cannot be completely freed from the carbohydrogen by expression, and that it is decomposed by a moderate heat. The carbohydrogen was removed by fractional distillation, repeated thirty times, and the oxygenated portion, boiled then constantly between 225° and 226° C., had a spec. grav. = 0.8268 at 20.5° C., a slight odor of pine apple and a bluish violet fluorescence in reflected light; its composition was $C_{22}H_{22}O_2$; it congealed at + 6°, and fused again at 15° C. Boiled with bichromate of potassa and dilute sulphuric acid, it yielded only pelargonic and acetic acids. Nascent hydrogen, generated by gradually introducing thin slices of sodium into a mixture of the oxygenated portion and alcohol, produced, among other compounds, hendecatylalcohol, $C_{22}H_{24}O_2$, which is a colorless liquid, insoluble in water, of the consistence of glycerin, and spec. grav. 0.8268.—*Zeitschr. f. Chemie*, 1870, *Septb.* 428—431.

Cholesterin in Wool Fat.—Ernst Schulze has proved the correctness of Hartmann's inference that this fat contains cholesterin. He

obtained the fat by exhausting sheeps' wool with ether. The fat was saponified, in the usual way, with potassa solution and table salt; the mother-liquor contained no glycerin. The soap was exhausted with ether, which on evaporation left 70 per ct. fat; this was boiled in a closed vessel with alcoholic solution of potassa, and then exhausted with ether. The residue left on evaporating the ether was repeatedly recrystallized from spirit of ether (1 ether to 3 or 4 alcohol), and was then pure cholesterin.—*Ibid.* 453—455.

Quiniometry.—Dr. E. A. Van der Burg criticizes de Vrij's method of determining the quantity of the alkaloids in cinchona bark, and corroborates his own results obtained in 1865. He proves that de Vrij's improved method* yields only about two-thirds of the alkaloids contained in the bark; that the balance remains mainly in the bark, and also in the alkaline liquor; that at present we possess no method for even the approximately correct separation of the cinchona alkaloids; that assays giving the composition of cinchona bark to the thousandth per cent. of the different alkaloids are unreliable, and that the main cause for the varying results of different chemists in analyzing the same bark must be looked for in the methods followed by them.—*Zeitschr. f. Anal. Chem.* 1870, ii, 179—203.

As a remedy for diphtheria, Dr. Rothe, of Altenburg, recommends the following: *Acidi carbolici*, alcoholis *aa* 1·0, *tinct. iodin.* 0·5, *aquæ dest.* 5·0 m. The mixture is applied three times daily to the affected parts of the throat, and the removable membrane is detached with the same brush, so that the mixture touches the mucous membrane. The patient also uses a gargle of water, to a teacupful of which from 10 to 15 drops of the mixture is added. In severe cases the application is renewed every three or two hours, if possible, also during the night. Dr. Rothe relates 15 cases, of which but one terminated fatally, and in this the diagnosis "diphtheritis" was doubtful.—*N. Jahrb. f. Pharm.* 1870, *Juli*, 46, *from Apothekerzeitung.*

Dialyzed Oxide of Iron.—Berlandt in Bucharest recommends to inclose solution of sesquichloride and oxide of iron in a well washed hog's bladder, the opening of which connects with an open glass tube of 10 m. m. diameter; the bladder is suspended in a beaker filled

* 10 grm. powder percolated with dilute muriatic acid, to obtain 150 c. c., the liquid decomposed with NaO, and agitated with ether.

with water, and the liquid dialyzes completely in eight days.—*Archiv d. Pharm.* 1870, Oct. 9.

Preparation of Coca.—Dr. Ullersperger (N. Repert. f. Pharm. 1870, Octbr. 631—633) brings to the notice of the German pharmacists and physicians eight preparations of coca made by A. Dante Ferroni, in Florence.; namely, three syrups, troches, arrowroot, wine, chocolate and balsam. These preparations evidently belong to that class of nostrums of which the pretended composition is given without the process.

Resin of Tampico Jalap.—Prof. H. Spirgatis calls it tampicin; it resembles convolvulin, the resin of true jalap, in appearance, but is soluble in ether, like jalapin, the resin of fusiform jalap, from which, however, it differs in composition; it is a glucoside, and undergoes by chemical agents changes analogous to those occurring under similar circumstances with the other two resins named. The composition of tampicin is $C_{68}H_{54}O_{28}$. Its medical properties are similar to those of true jalap resin, but it appears to be less reliable. On account of the small quantity of resin which tampico jalap contains, and the greater loss of alcohol, its cost is higher than that of convolvulin.—*N. Repert. f. Pharm.* 1870, Aug. 452—459.

CONEIN.

Prof. J. Lawrence Smith kindly sends the following very interesting item translated from the *Bericht. Deut. Chem. Gesell.*, December, 1870:

“*The first artificial production of a Vegetable Alkaloid (Coniin) by Hugo Schiff.* This alkaloid has been heretofore only known as the product of the plant. For some months he has been engaged in examining the reaction of ammonia and the aminobases on aldehyde, and one of the products then discovered was *butyric aldehyde*. Latterly he has been examining the reaction of an alcoholic solution of ammonia in this butyric aldehyde at a temperature of 212° Fahr., and from this he obtained two bases, which he calls Tetrabutyraldin and Dibutyraldin. By heating this last until it distills, the first product is a neutral oily substance; and the substance which comes over last is a strong alkaline base that proved to be coniin, having the poisonous and other physiological properties of the natural coniin. The amount produced is yet small and costly; but the history of chemistry

shows that the demand for its products is the greatest stimulant to increased production and cheapening cost. In this is to be seen a decided step toward the artificial production of morphine, quinine, etc.—*American Practitioner*, March, 1871.

OBSERVATIONS ON THE MANUFACTURE OF VERMILLION.

By M. ALSBERG, PH. D.

In the process of manufacturing vermillion by Martin's method (agitation of quicksilver, sulphur and alkaline sulphuret), two different stages can be easily distinguished; first, the combination of mercury and sulphur to the black sulphide; and secondly, the conversion of this amorphous black modification into the crystalline red. The chemical combination, as well as the crystallization, is accompanied by the evolution of considerable heat, which may become so great, especially during the latter stage, and when working in closed vessels, as to give rise to dangerous explosions.

The crystallization, a consequence of the solubility of the black sulphide in the alkaline sulphuret, and its gradual precipitation in the red form, only takes place when the mass is warm. If it be kept cold it requires a great length of time, often weeks, and even months, until the crystals are formed. If, on the contrary, the crystallization has once set in (this is indicated by the black mass turning brown), it is generally finished within twenty-four hours. In the case of the slow crystallization, there are sometimes crystals obtained, which, in color and form, greatly resemble the native ore; the same crystals are occasionally formed when the solution of alkaline sulphuret containing sulphide of mercury is concentrated. Professor J. P. Cooke, Jr., of Cambridge, who examined some crystals of that kind, says:—"They were rhombohedra, approaching a cube, and have the peculiar form of maeling, which is so characteristic. They are, doubtless, the primitive rhombohedra observed on the native crystals, R on R $92^{\circ} 36'$. The faces are striated parallel to the basal diagonal of the rhomb face, and the crystals are terminated by the plane of a more obtuse rhombohedron of the same order."

The solubility of the sulphide of mercury in the alkaline sulphurets is considerable, especially when the fluids are concentrated, and then even in the presence of polysulphurets. This solution cannot be diluted without the sulphide of mercury being precipitated in the black

modification, but the precipitation may be prevented by the addition of a small quantity of caustic alkali.

Evidently this is the reason that Weber says that sulphide of mercury will dissolve in alkaline sulphurets only in the presence of free alkali, whereas solutions of the alkaline sulphurets, containing so much sulphur as to look deep red or brown, will readily dissolve enough of the sulphide to give, on dilutions, a considerable black precipitate. The precipitate does not always form immediately, but invariably makes its appearance after a short lapse of time.

The solubility* of the sulphide of mercury constitutes the chief source of loss in the manufacture of vermillion, and, on an average, amounts to from five to eight per cent. of the mercury taken.

In spite of all precautions, it will sometimes happen that the mercury "flours," and, as it seems, every minute globule is coated with a thin layer of sulphide. This coat not only prevents the conversion of the metal into the sulphide, but even its solution in nitric acid. If concentrated nitric acid be used, the whole of the sulphide and metal is dissolved, whereas dilute nitric acid has no effect at all. Concentrated hydrochloric acid, especially when boiling, will readily decompose the sulphide.

As it is well known, no vermillion will withstand the action of the light; it turns dark and gradually black again. Whether this change is due to the decomposition of the sulphide into the sub-sulphide and free sulphur, or simply to the conversion of the crystalline into the amorphous modification, is doubtful; but it is certain that any impurities increase this tendency, especially the presence of free mercury, which seems to indicate that a decomposition does take place, though always only on the surface. Even the passing of steam or the evaporation of a drop of water over some vermillion will often rapidly effect this change of color. Of course, the value of the vermillion greatly depends on the stability of color, and therein the different articles of commerce vary greatly. Some will retain their brightness for several years, while others may be seen to change after a few weeks. If, perhaps, the vermillion obtained by sublimation is a little more stable than that manufactured by the wet process, it certainly, with

* It is generally stated that sulphide of ammonium does not dissolve sulphide of mercury, but, judging from the fact that, according to Liebig and Gautier Bouchard, sulphide of ammonium effects the crystallization of the black sulphide, it seems probable that this statement is not quite correct.

respect to brightness and fire, does not sustain comparison with the latter; therefore, the latter constantly gains more ground. The different shades, from a deep red almost to an almost light orange, are simply a consequence of the size of the crystals; the larger the crystals, the deeper the color, and *vice versa*, so that large crystals resemble, in their cochineal color, the native cinnabar.

Until a few years ago, all the vermillion used in the United States was imported mostly from Europe, and some from China, but now our own manufacturers have defeated foreign competition, when taking into account the high price of labor, &c. The protection by duty is very small, but not only have our manufacturers successfully competed with Europe, but they have even reduced the price considerably, thereby again increasing the use of their product. It may be safe to say, that the annual production in America amounts to 500,000 lbs., and may, before long, reach 1,000,000 lbs. The precarious condition of the California mercury mines may place our manufacturers in a dangerous position, compelling them to obtain their supply of mercury from Spain, at a greatly increased cost. Already, within the last six months, the price of mercury has risen fully 35 per cent., and, as the mercury trade is a monopoly, it may go higher still.—*Chemical News, London, February 17th, 1870, from the American Chemist.*

MAGNIFICENT FLUORESCENCE OF PEPPERMINT OIL.

By PROFESSOR FLUCKIGER.

50 to 70 drops of peppermint oil shaken with one drop of nitric acid, about 1.2 sp. gr., turn faintly yellowish, brownish, and, after an hour or two, exhibit a most beautiful blue-violet, or greenish-blue color, when examined in transparent light. When observed in reflected light, the liquid is of a copper color, and not transparent. If the mixture is warmed, the green or blue coloration takes place speedily; it may also be immediately provoked by adding a greater amount of nitric acid, say 1 drop to 19, or 9 drops of the essential oil.

Bisulphide of carbon contributes in no way to improve the test. All the various specimens of peppermint oil at my command show the same behavior, but the blue or greenish-blue hue exhibits very appreciable differences, which ought to be further examined by chemists

possessing authentic specimens of the oil under notice. A very old specimen of an originally excellent English oil, however, was no longer colored.

The color which peppermint oil thus acquires is remarkable on account of its persistency, for it lasts a week or two, at least in cold. Yet, unfortunately, it appears not capable of being applied as a true test; an admixture of 5 per cent. of oil of turpentine, for instance, does not at all prevent peppermint oil from assuming the blue or green color; on the other hand, I have not as yet met with any other oil partaking of the same behavior; carven, the more volatile portion of caraway-oil, also acquires a slight similar fluorescence, but by no means comparable to the above-described as regards purity and intensity of color.

Peppermint oil, which has become colored in this way, is quickly decolorized if shaken with carbonate of calcium; granulated zinc, likewise causes it slowly to turn brownish. Spectroscopic examination of the colored oil furnishes no phenomena of particular interest. Chromic acid, dissolved in chloroform, does not perform the same reaction as nitric acid.—*London Pharm. Journ.*, February 25th, 1871.

CASTOR-OIL SOAP.

By F. M. RIMMINGTON.

It is somewhat remarkable that our present English pharmacy has no pure medicinal soap possessing any characteristic property or medicinal activity. The ordinary Castile soap, being that which is commonly used for that ordered by the Pharmacopœia, can scarcely be considered a satisfactory article when we consider its composition and the mode of its manufacture. Having recently had occasion to direct my attention to this subject, it occurred to me that castor-oil offered some advantages, and would yield a soap possessing qualities very desirable in an article which so frequently formed the medium or adjunct for administering other active remedies. On putting this idea into practice, I found that a soap prepared from this oil has rather marked qualities, but my opportunities do not afford me the means of properly testing its medicinal properties. I believe it will be found that it has sufficient aperient power to relax the bowels when taken consecutively for several days, but I believe its greatest value will be found as an adjunct to other aperients. This at least

is the result I have arrived at. It is, of course, well known that the purgative principle of castor-oil has been ascribed by Soubeiran to the existence of a supposed oleo-resin, and that the ricinoleic acid is extremely acrid. I find when the oil is saponified that this acrid principle is either entirely or partially liberated, and does not continue masked as it is in the oil in its natural state, nor neutralized, as might be expected, by the alkali. It is to this fact, I think, we must look for any active property this soap may possess; and here I must leave the matter for the further investigation of the medical and pharmaceutical professions. The physical properties of the soap are in its favor for use in medicine. It has a clean yellowish-white color, is free from smell; it soon becomes dry, hard and is easily powdered; it has no tendency to soften or deliquesce on exposure to the air. In proof spirit it makes a perfectly clear and colorless solution, with only a little sediment. I shall forward a specimen to the Society for the inspection of those who may feel interested.—*London Pharm. Journ.*, February 25, 1871.

IODOFORM.

By J. HENRY CARSTENS, M. D.

As to some of the readers of the *Review* the mode of preparing this article, while to others its therapeutic uses may be of interest, I may be allowed to write a few words about this compound, which has come into such sudden and extensive demand.

Teriodide of formyl, or sesquiiodide of carbon, as it was formerly called, has a chemical composition of CHI_3 . It was discovered in the year 1822, by Serullas, who procured it by adding chlorinated lime to an alcoholic solution of iodide of potassium. Claimed by Dumas to be analogous to formic acid, the iodine taking the place of the oxygen (also, chloroform and the like preparations).

A good method for making this compound is given by Wittstein. Two parts of carbonate of potassa, two parts of iodine, one part of alcohol, and five of water, are mixed in a retort, which is then heated by means of a water-bath, till the contents are perfectly colorless. After the retort has cooled, the liquid is poured into a beaker and allowed to settle. The yellow, scaly mass is then collected on a filter, washed thoroughly with water, and dried between filter-paper. Reaction (according to new nomenclature): $6 (\text{K}_2\text{CO}_3) + 16 \text{I} + 2 (\text{C}_2\text{H}_5$

HO). Five atoms of oxygen of the carbonate of potassa join 2 (C_2H_5 HO), forming 2 ($HCHO_2$) + 3 (H_2O) + 2 (CH). 2 ($HCHO_2$) combines with $K_2O=2 (KCHO_2, H_2O)$ while 10 K + 10 I=10 (KI), and 6 I and the 2 (CH) of the alcohol form 2 (CHI_3), carbonic acid escaping.

According to this, the gain of iodoform would be 38 per cent.; but the reaction never takes place so completely, and we must remember that all these changes take place at once, and that iodoform is very volatile (must never be made in an open vessel) the alcohol evaporates, and must be used in larger quantities; the excess of carb. of potass. does not retard, but seems to increase the reaction.

By using six ounces of iodine, only one ounce of iodoform is collected, or about 17 per cent. It would therefore be very expensive if we could not make use of the filtrate for making iodide of potassium. This liquid contains, besides traces of iodoform, the balance of the iodine as iodate of potassa and iodide of potassium, and also formate and carbonate of potassa.

Evaporate this solution to dryness, and triturate with one-eighth of its weight of charcoal, and then heat to redness for a short time in an iron crucible, then digest in alcohol and filter; the residue is carbonate of potass., while the filtered solution contains the iodide of potassium; the alcoholic solution is evaporated, and allowed to crystallize. By this means no iodine is lost, and teriodide of formyl ought to be not more expensive than iodine.

Iodoform appears in the shape of yellow, shining, six-sided scales, with a spicy odor (like saffron or iodine and chloroform); is volatile at ordinary temperature. Almost insoluble in water (one part in 13,000), but more so in alcohol (one part in 80). If it be used in a mixture, must avoid alcoholic solution of potassa, which decomposes it, forming formate of potassa and iodide of potassium: $CHI_3 + 2 (K_2O)=KCHO_2 + 3 KI$.

Besides the well-known effects of iodine and its preparations, iodoform has the advantage of the former preparation of being stronger and more uniform in its action on the system; that is, does not corrode, nor act as a local irritant, and that, therefore, it may be given uninterruptedly. It is anodyne, and, consequently, often useful in neuralgia; produces, also, a local and partial anæsthesia of the colon. It has less anæsthetic powers than chloroform, although recommended by Eugenio Franchino (*Gaz. Sarda.*, 28, 1858) as a general anæ-

thetic in place of chloroform. First used by English physicians in form of ointment for exanthema; used by Lichtfield in porrigo and lepra; by Glover for psoriasis, impetigo, scabies, etc.; also recommended for croup (internally), and used with good success (*Monthly Journal*, Feb., 1848). On the recommendation of Moretin and Mouzard (*l'Union*, 1857), used as a local anaesthetic, in the form of suppositories, in the prostate; it also seems to relieve tenesmus, easing defecation.

Iodoform has lately been prominently brought to the notice of physicians in this country as a remedy for chronic ulcers (Proc. Penn. State Med. Soc., 1868), obstinate neuralgia, scrofula, strumous ophthalmia, consumption, and even in cancer is stated to have relieved the excruciating pain of this malignant disease, without seeming to arrest the same (*Med. and Surg. Rep.*, Phil., Vol. 16, 17, 18). It is also a valuable dressing in chancre.

It is best administered in pill form, one to two grains, three times a day. Quevenne's iron may often be advantageously added. Externally it is used as an ointment, one-half to one dram of iodoform to one ounce of lard, or it is dissolved in hot alcohol, and glycerin added: these to be used *pro re nata*.—*The Pharmacist*, January, 1871, from *Detroit Rev. of Medicine*.

GLYCERINE EXTRACTS OF PEPSINE AND OTHER FERMENTS.

Mr. M. Foster reports, in *Nature*, the result of a repetition of some experiments, published a short time ago by Von Wittich in *Pflüger's Archiv*, upon the isolation of pepsine and other so-called ferments by means of concentrated glycerine.

After washing the mucous membrane of a pig's stomach, it was freed as much as possible from water, minced, bruised, and covered with pure glycerine. Having stood twenty-four hours, a few drops of the glycerine, diluted with acidulated water, digested fibrin rapidly. This process was repeated four times, each resulting extract manifesting strong peptic powers. Treated, after filtration, with an excess of alcohol, these extracts gave a slight precipitate, which, separated by filtration and redissolved in acidulated water, was strongly peptic.

Salivary gland and pancreas yielded to glycerine a starch-converting ferment, and a "laden" pancreas gave a ferment digesting fibrin in an alkaline medium. Ungerminated barley gave up a non-proteid diastase; almonds a ferment acting on amygdalin.

The author thinks that glycerine offers advantages in the investigation of this subject not presented by any other medium, as the extracts remain unchanged for a long time, while the tissues, being little altered after exhaustion of their ferment by repeated treatment with glycerine, may be examined under conditions hitherto impossible. He claims that these results are also of practical value in the preparation of the so-called pepsin for medical purposes; as by glycerine a pure palatable peptic liquid, apparently keeping any length of time and certain in its action, can easily be obtained.—*Pharm. Journ., Lond., Jan. 7, 1871.*

PROCESS FOR PREPARING LIQ. FERRI TERSULPHATIS AND
LIQ. FERRI SUBSULPHATIS, U. S. P., WITHOUT THE FORMATION OF NOXIOUS GASES.

By J. CREUSE, of Brooklyn, N. Y.

The best method for preparing the persulphates of iron perfectly pure is, undoubtedly, to run a stream of chlorine gas through a solution of the protosulphate previously acidulated with the proper quantity of sulphuric acid. But this is obviously impracticable to most pharmacutists. The Pharmacopœia of the United States prescribes to oxidize the protosulphate of iron by means of nitric acid, a certain proportion of sulphuric acid being added. This is more practicable, and yields a good product, but is liable still to several objections. Expensive vessels are required for boiling a mixture of sulphuric and nitric acids; a good draught is also necessary for the escape of the nitrous fumes, and very often during the operation the vessels are broken, or the operator is annoyed by the poisonous gases escaping into the room. For these reasons, many pharmacutists prefer to buy the articles ready made; they have to pay a high price for it, and to depend on the manufacturer for its strength and purity.

I propose this new method, by which any pharmacist may prepare his own Liq. Ferri Tersulphatis or his Liq. Ferri Subsulphatis on his very prescription-desk, if need be, and with the usual implements found in all drug-stores.

R Sulphate iron in coarse powder, twelve troyounces.

Sulphuric acid, two troyounces and sixty grains.

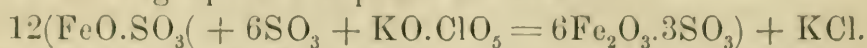
Chlorate of potassa, three hundred and forty-eight grains.

Boiling water, twelve fluidounces.

Dissolve the sulphate of iron, in the boiling water, in a glass mat-

rass, or any convenient bottle. Add the sulphuric acid gradually, and, while the liquid is hot, add the chlorate of potassa by small portions. When all is dissolved, filter and complete twenty-four fluid-ounces. The whole operation need not take more than fifteen minutes.

The following equation explains the reaction :



This process has the advantage of giving out no fumes or smell of any kind ; the product is free from any acidity but what belongs to the salt itself.

It is true the persulphate of iron thus obtained contains a small quantity of chloride of potassium, but this does not interfere with any of the uses for which it is wanted by the pharmacist. I think that the nitric acid always present in the preparation of U. S. P. is much more objectionable. Besides, any one who has followed the U. S. P. process, knows that it is always when one tries to get rid of the last traces of nitric acid that the porcelain or enamelled dishes are broken.

A slight modification of the formula will give the Liquor Ferri Sub-sulphatis U. S. P. :

R Sulphate of iron, coarse powder, twelve troyounces.

Sulphuric acid, one troyounce and thirty grains.

Chlorate potassa, three hundred and forty grains.

Boiling water, ten fluidounces.

Operate as above, and evaporate to twelve fluidounces. Filter.—
The Physician and Pharmacist, Feb. 1871.

ON THE USE OF WAX, TALLOW, ETC., IN SUPPOSITORIES.

BY CHARLES L. EBERLE.

(Concluded from last number.)

Slow manipulation with a mixture of wax and cacao-butter before hardening, we can readily understand, would cause a granulation of the wax, and produce a cone in which the heat to which it is to be subjected would act only upon the cacao-butter, to the exclusion of the wax, which would then remain unchanged, causing irritation and difficulty ; but we are only supposed to be dealing with mixtures which have been well stirred to the time of their introduction into the mould, which mould has been thoroughly chilled, and the suppository likewise. Under such circumstances the mixture is uniform and per-

fect, and shows no disposition to separate on fusion, if the heat be maintained at that point.

The difficulties in a proper understanding of the preparation of suppositories without the addition of a hardening ingredient in connection with cacao-butter have been solely those of manipulation.

Experience is leading many to prepare the excipient with a smaller proportion of wax, spermaceti, &c., than they at first thought necessary, until the quantity used by some is so trifling as to practically amount to little or no use.

Of the various mixtures, those of one-eighth spermaceti or one-fourteenth or less of wax are least objectionable. Tallow suet or paraffine produced no results not secured by the first-mentioned, while there were some objections to be attached to their use not present in the others.

Now while some have discovered points of manipulation to make these suppositories of *cacao-butter alone*, rapidly and well (and how much often hangs upon a very slight thread in this respect), far exceeding in value those I am about to offer to you, I will simply state the mode which gives me the most satisfactory result.

The mould is of brass; a clamp hinged at one extremity and handled at the other, held firmly in place by a ring slipped over said handles; the cones are turned from the interior face of the clamps, as in an ordinary bullet-mould. It should mould at least one dozen, and be improved by the addition of a loose clamp, to be attached firmly in the centre and at the bottom of so long a tool, to prevent the loss of the fused mass before congealing, by running from between the plates.

This mould should, so far as possible, be thoroughly chilled and ready for use. To place the fused butter in the mould while it is warm, and cool both by the same operation, almost invariably results in the contraction of the metal upon the cool cone to a degree that upon the attempted separation of the matrix every cone will be split in two. When the mould is thoroughly cooled, the butter sets rapidly, and in fifteen or twenty minutes the suppositories will drop from the matrices by their own gravity.

The deductions I draw from a close observance of this subject for the past two years are, that the addition of a substance such as wax, spermaceti, &c., to cacao-butter produces a mixture requiring a higher point of heat for its fusion, and in proportion to the amount of such

addition; and that when such addition is made, if it should not be sufficient to prevent the fusing of a suppository at animal temperature, no irritating or harmful effect is produced either upon the vagina or urethra. Where a larger quantity than that mentioned above is added, the annoyance produced requires the removal or ejection of the suppository before any harm may be done.—*Proc. Amer. Pharm. Assoc.*, 1870.

Philadelphia College of Pharmacy.

THE ANNUAL COMMENCEMENT of the fiftieth session of the Philadelphia College of Pharmacy was held on Wednesday evening, March 15th, 1871, at the American Academy of Music. The degree of Graduate in Pharmacy was conferred on the Graduating Class by the President of the College, Dillwyn Parrish. Seven of the graduates were passed at the June examination, 1870, the remainder (62) at the present March examination.

The Valedictory Address, made by Prof. Edward Parrish, was appropriate to the occasion, and very well received.

The public presentation to the College of a portrait of Prof. John M. Maisch by the Graduating Class, was prevented by a misunderstanding, by which the picture was not sent to the Academy.

The usual liberal donation of bouquets, and other presents of books, etc., to the graduates from their fair friends, was observed, and it was curious to notice the usual variableness which marked the gifts of fortune to the donees, yet we believe all were remembered.

By order of the Board of Trustees, the Report of the Examining Committee and the list of queries are published, and are as follows:

To the Board of Trustees of the Philadelphia College of Pharmacy.

The Professors and the Examining Committee respectfully report that the following 62 candidates have passed the examination and are, therefore, recommended for the degree of Graduate in Pharmacy. Their names, in the order of their merit, commencing with the most meritorious, are as follows:

NAME.	STATE.	THESIS.
Chas. F. Bolton,	Pennsylvania.	<i>Benzoating Ointments Extemporaneously.</i>
Robert Simpson,	"	<i>Preservation of Pharmaceutical Apparatus from Breakage by Sudden Changes of Temperature.</i>
Charles D'Invilliers,	"	<i>Preparations of Iron.</i>
John D. Owen,	Kentucky.	<i>Subnitrate of Bismuth.</i>
Stewart Kellam,	Texas.	<i>Liquor Plumbi Subacetatis.</i>
George C. Lippincott,	New Jersey.	<i>The More Recent Products of Pharmacy.</i>
John B. Raser,	Pennsylvania.	<i>Pharmaceutical Ethics.</i>
Charles C. Sniteman,	Illinois.	<i>Phytolacca Decandra.</i>
John F. Huneker,	Pennsylvania.	<i>Subbatia Angularis.</i>
Edward T. Hehr,	"	<i>Fructus Cardui Mariani.</i>
C. Hill Brinton,	"	<i>Unguenta.</i>
Julius Junginann,	"	<i>Uva Urst.</i>
Wm. G. Ewing,	Tennessee.	<i>Suppositories.</i>
James A. Jeffries,	Pennsylvania.	<i>Brayera as a Remedy for Tapeworm.</i>
Louis Shaw,	"	<i>Nitroprusside of Sodium.</i>

Emmor H. Lee,	New Jersey.	<i>Extractum Rhei Fluidum.</i>
Edgar C. Gramm,	Pennsylvania.	<i>Asimina Triloba.</i>
Joseph Anthony,	Virginia.	<i>Emulsions.</i>
Thomas H. Potts,	New Jersey,	<i>Nepeta Cataria.</i>
John L. Beecher,	Ohio.	<i>Examination of a Silver Ore.</i>
Fred. C. Weber,	Illinois.	<i>Acidum Arsenicosum.</i>
Aaron Stern,	Pennsylvania.	<i>Patent Medicines.</i>
Charles E. Roberts,	"	<i>Oleoresina Filicis.</i>
A. J. Odenwelder,	"	<i>Falsification of Drugs.</i>
Charles J. Kadish,	Illinois.	<i>Comprehension and Classification of Poisons.</i>
John A. Weaver,	Pennsylvania.	<i>Baptisia Tinctoria.</i>
T. Ellwood Conard,	"	<i>Cimicifuga Racemosa.</i>
John T. Viley,	Kentucky.	<i>Crab Orchard Salt.</i>
Harrison Duffield,	Pennsylvania.	<i>Ursin.</i>
J. Thomas Hoskinson,	"	<i>Adiantum Pedatum.</i>
Richard W. Hickman,	"	<i>Cimicifuga.</i>
Frank Plunkett,	"	<i>Quillaja Saponaria.</i>
Aug. A. Richards,	"	<i>Starch.</i>
C. G. A. Loder,	"	<i>Senecio Vulgaris.</i>
Oliver Eberhart,	"	<i>Stramonium.</i>
J. Niven Seouller,	"	<i>Tela Aranea.</i>
Michael J. Cummings,	"	<i>Action of Chlorides on Calomel.</i>
H. Clay Webster,	New Jersey.	<i>Products of the Vegetable Kingdom.</i>
William Weber,	Pennsylvania.	<i>Catalpa Bignonoides.</i>
Barelay Johnson,	"	<i>Percolation.</i>
Emmet Kannal,	Indiana.	<i>Humulus Lupulus.</i>
George D. Kressler,	Pennsylvania.	<i>The Requisites of a Druggist.</i>
John W. Wood,	Delaware.	<i>Tinctura Ferri Chloridi.</i>
E. D. Snyder,	Ohio.	<i>Aqua.</i>
Joseph Kaufman,	"	<i>Livimentum Ammonia.</i>
George R. Kuhn,	Pennsylvania.	<i>Cypripedium Pubescens.</i>
Parker P. Ink,	Ohio.	<i>Coccus Cacti.</i>
Hosea F. Seeley,	New Jersey.	<i>Hydrastis Canadensis.</i>
Wilnot Hansell,	"	<i>American Botanic Drugs.</i>
Selden W. Smith,	Pennsylvania.	<i>Pharmaceutical Advancement.</i>
John S. McElwee,	New Jersey.	<i>Hydrate of Chloral.</i>
Emiliano Causse,	Cuba.	<i>Pharmacy in Cuba.</i>
William Simms,	South Carolina.	<i>Fluid Extract of Ipecacuanha Root.</i>
Jerome A. Eldridge,	New Jersey.	<i>Adulteration of Medicinal Substances.</i>
Harry V. Camm,	"	<i>Solanum Dulcamara.</i>
J. W. Worthington,	Pennsylvania.	<i>Emplastrum Belladonna.</i>
Wallace B. Boyer,	"	<i>Cypripedium Pubescens.</i>
George R. Vernon,	"	<i>Percolation.</i>
John W. Harry,	"	<i>Rumex Crispus.</i>
Enrique Rubio y Diaz,	Cuba.	<i>Poisoning by Arsenic.</i>
J. Ehrman Lehman,	"	<i>Prinos Verticillatus.</i>
William C. Watson,	Pennsylvania.	<i>Preparation and Mode of Dispensing Drugs.</i>
*Wardle Ellis,	"	<i>Cimicifuga.</i>
*Francis Fox,	"	<i>Chimaphila Umbellata.</i>
*Howard B. French,	"	<i>Syrup of Guaiac.</i>
*George J. McKelway,	"	<i>Fucus Vesiculosus.</i>
*Edward D. Painter,	Delaware.	<i>Ung. Hydrarg. Nitratis.</i>
*Elliott D. Paxson,	Pennsylvania.	<i>Phenic Acid.</i>
*U. F. Richards,	New Jersey.	<i>Glycerin and its Uses.</i>

* Graduates of June, 1870, not arranged in order of merit.

ROBERT BRIDGES, JAMES T. SHINN, CHAS. BULLOCK.
EDWARD PARRISH, WILLIAM C. BAKES, A. B. TAYLOR,
JOHN M. MAISCH, *Profs.* Committee.

The Board having determined to change the method of examining candidates for the diploma from verbal to written queries and answers, arrangements were made in the two lecture halls so that the entire number of candidates could be seated at separate desks, so as not to communicate with each other. But one branch was considered each day, and each student had the printed questions before him, with paper and pencil. A professor was in each room, to reply to proper queries. As soon as a student announced the completion of his task he was taken to the ten specimens relating to the particular branch under consideration, and wrote the names of each according to his judgment. So that all the answers of each student to all queries and specimens was on record.

The following are the queries adopted for the present year :

CHEMISTRY. Prof. Robert Bridges, M. D. Session 1870—71.

- No. 1. Give the source, mode of preparation and the properties, including solubilities and tests of Iodine.
- No. 2. How is Muriatic Acid prepared? State its composition, its properties in the gaseous and liquid state, and its reactions.
- No. 3. What solutions of Ammonia are officinal? State their mode of preparation and specific gravities; also the chemical properties of Ammonia.
- No. 4. What officinal preparations are made from Iron and Sulphuric Acid, with and without the aid of Nitric Acid? Show, by equation, the reactions occurring in these processes.
- No. 5. Give a process for the preparation of Iodide of Potassium and state the rationale of it.
- No. 6. How is Phosphate of Soda obtained, what other salt or salts is it likely to be contaminated with, and how tested?
- No. 7. How is Nitro-Muriatic Acid made? In what respect does its chemical action differ from that of either acid used in making it, and why?
- No. 8. Give the characteristic tests for Sulphuric, Boracic, Nitric, Acetic and Phosphoric Acids and their soluble compounds.
- No. 9. How are the soluble salts of Baryta, Lime and Magnesia distinguished from each other by chemical tests?
- No. 10. What double tartrates are officinal and how are they made?

MATERIA MEDICA. Prof. John M. Maisch Session 1870—71.

- No. 1. Where and from which plant or plants is Assafoetida obtained! Describe its composition, commercial varieties and the usual adulterations.
- No. 2. Give a description of Sweet and Bitter Almonds? From what plants and from what countries are they obtained? What are their medicinal products and how obtained?
- No. 3. What is the source of Colocynth, where is it obtained and what is the cause of its shrivelled or plump appearance? Which part, and what percentage of the entire drug is rejected in medicine?
- No. 4. What is the origin of the commercial varieties of Buchu leaves, and how do they differ from all other officinal leaves?
- No. 5. State the country, source, constituents and properties of Quassia wood; how and in what doses is it administered?
- No. 6. State the area—geographical, horizontal and vertical—of the native distribution of the genus Cinchona; and how may the true and false cinchona barks be distinguished?
- No. 7. Describe the difference in the appearance and physical properties of Serpentaria and Spigelia.
- No. 8. Give the outlines of the process for obtaining Colchicia, stating which part of the plant contains the largest proportion, and what are its chemical reactions?
- No. 9. What is the meaning of the terms: Root, Rhizome, Tuber and Bulb? Give examples of officinal drugs of each.
- No. 10. What are the botanical characters of the natural order of Labiatae? Name some medicinal herbs belonging to that order.

PHARMACY. Prof. Edward Parrish. Session 1870—71.

- No. 1. Give the number of minims in a fluid-ounce and in a pint, the number of grains in 12 troy ounces and in a pound avoirdupois; also the weight of a fluid-ounce of Water.
- No. 2. Give the proportions, doses, and modes of preparation of Camphor Water, Creasote Water, Bitter Almond Water, Infusion of Buchu, Infusion of Wild Cherry, Infusion of Digitalis, Tincture of Digitalis, Tincture of Arnica, Tincture of Belladonna.

- No. 3. Give the officinal names, menstrua, proportions and doses of the galenical preparations of Opium.
- No. 4. Give the process for Fluid Extract of Ipecacuanha.
- No. 5. Give the specific gravities of Stronger Alcohol, Alcohol, Diluted Alcohol, Stronger Ether, Ether, Chloroform, Acetic Acid, Glycerin, Spirit of Nitrous Ether, Syrup.
- No. 6. Give an outline of the process for preparing Sulphate of Quinia; also its solubilities and characteristic tests.
- No. 7. How is Gallic Acid prepared and how distinguished from Tannic Acid.
- No. 8. Give a formula for preparing a Castor Oil mixture.
- No. 9. What officinal pills contain Aloes? Give the composition of each.
- No. 10. What three officinal preparations contain Tartrate of Antimony and Potassa, and in what proportions?

The following specimens were submitted for recognition :

<i>Chemistry.</i>	<i>Materia Medica.</i>	<i>Pharmacy.</i>
Acidum Nitricum,	Senega,	Pulv. Ipecacuanhæ,
Acidum Citricum,	Aconiti Radix,	" Ext. Coloc. Comp.,
Acidum Oxalicum,	Angustura,	Mistura Assafœtidæ,
Potassii Bromidum,	Cascarilla,	Syr. Sarsap. Comp.,
Potassæ Bichromas,	Digitalis,	Tinct. Cardamom. Comp.,
Sodæ Boras,	Belladonnæ Fol.,	Tinct. Gentianæ Comp.,
Magnesiæ Sulphas,	Santonica,	Lin. Saponis Camph.,
Manganesii Sulphas,	Anethum,	Extract. Buchu Fluid,
Ferri Subcarbonas,	Capsicum,	Spir. Ætheris Comp.,
Æther.	Galbanum.	Spiritus Ætheris Nitrosi.

The above examinations were by the several professors.

In addition to these the Examining Committee, consisting of four members of the Board of Trustees, have also a special examination, two of the Committee serving each day, and direct their queries to the practical parts of pharmacy and the recognition of drugs.

SPECIAL REPORT OF THE COMMITTEE ON EXAMINATION.

The committee on examination respectfully report, that they have attended to the responsible duty assigned to them, and passed their judgment on seventy-one candidates for the honor of the Diploma of the College.

Your committee feel it their duty to call the attention of the Board to a deficiency of information in the case of a large number of candidates, in the *practical details* of chemistry and pharmacy.

The committee fear that there has been a *growing* laxity of attention on the part of employers in giving personal supervision to the instruction of the young men learning their business with them, and in encouraging them by study, and cultivation of habits of earnest attention to details, to train their minds to the exercise of all their faculties, instead of making their daily duties those of merely manual performance.

When we remember that an apprentice (under the code Ethics of the College) is taken for a term of three or four years, and that his pecuniary compensation is during that time hardly sufficient for his support, there appears to be a *moral obligation* on the employer to use due diligence in instructing his apprentice in such a way that *if he is not* well qualified for the responsible duties of his profession, the fault may not lay at the door of his instructor.

Impressed with these views, your committee would respectfully suggest that the Board of Trustees should call the attention of the members of the College to this important subject, and exhort them to a more systematic training of their apprentices, and by personal attention and stated examinations, endeavor to elevate the standard of information.

We all agree with Prof. Procter, "that no amount of tuition by *lectures* will be equivalent to that which the earnest student receives in the dispensing shop and practical laboratory, under the *personal* instruction of a well qualified pharmacist, who takes an interest in his pupil."

Chas. Bullock,	}	<i>Committee.</i>
James T. Shinn,		
William C. Bakes		
A. B. Taylor.		

Chicago College of Pharmacy.

The School of Pharmacy of this College, reorganized in October last, has had a successful course under the new faculty, Profs. Blaney, Bartlett and Hambright. The class numbered thirty, of whom one was a lady. One of the class, F. M. Goodman, having attended a previous course, in Philadelphia, passed his examination and was duly graduated; he was a pupil of Mr. J. W. Mill. The prospects for the coming year are brightening.

THE ANNUAL MEETING.

The Chicago College of Pharmacy held its annual meeting at the rooms of the association, No. 77 Dearborn street, yesterday afternoon. The President, E. H. Sargent, occupied the chair.

Mr. Thomas Whitfield read the report of the Committee on Cabinet Specimens and Apparatus. It showed that though the number and character were very creditable, they could be improved upon. The report was placed on file.

The Committee on Examination reported that F. M. Goodman had been examined and accepted as a member.

Longer time was granted to the Committee on the Progress of Pharmacy.

The death of Arthur Rappelje, in Canada, was reported by the Committee on Deceased Members.

The report of the Committee on Lectures congratulated the society on the successes of the past year, and referred to the lack of apparatus and specimens with which to illustrate them. The report recommended the purchase of large maps of Europe, Asia and Africa, and also of works containing the history of drugs. Report received and placed on file.

The Secretary, Mr. Hambright, reported that a large number of members still claimed membership without paying their dues or otherwise conforming to the rules. Of the annual dues for 1870—71, some \$455 had been collected, \$50 on certificates and \$54 on naturalization tickets. Of moneys still due, some \$263 was yet to be collected. Of members admitted since March, 1870, there

had been 10; foreign honorary members, 2; home honorary members, 8; resigned, 1; deceased, 1. The roll at present contains 119 active members, 3 associate members and 15 honorary members. The orders drawn upon the treasury amounted to \$609.26. Report received.

The Treasurer reported that the cash in the treasury amounted to \$331; the receipts for the year had been \$757.33; expenses, \$694.26; balance, \$394.26. Report received and referred to the Auditing Committee.

The President then delivered his retiring address. He urged increased zeal and attention to the best interests of the society, and that proprietors should make it possible and convenient for their clerks to attend the lectures. The publication of *The Pharmacist* had met with much success, owing in great part to the exertions of Mr. Whitfield. A permanent home for the college must soon be had. In closing, Mr. Sargent resigned his office as President.

The Association then proceeded to an election of officers, with the following result:

President—E. H. Sargent.

Vice-Presidents—J. W. Ehrman, E. T. Schloetzer.

Treasurer—A. C. Vanderburg.

Secretary—G. M. Hambright.

Corresponding Secretary—Albert E. Ebert.

Board of Trustees—Thomas Whitfield, Henry Biroth, George Buck, N. Gray Bartlett, John M. Wilson, Joseph M. Hirsch, W. F. Blocki, T. H. Patterson, Henry Sweet and Thomas N. Jamison.

The meeting then adjourned.

Maryland College of Pharmacy.

The nineteenth annual commencement of this institution was held at the new Assembly Rooms, on the evening of March 10th at 8 o'clock. A large and intelligent audience was present, and music was discoursed by the fifth regiment band. The ceremonies were opened with a prayer by Rev. E. A. Dalrymple, D. D.

Prof. Thomas J. DeRossett, M. D., after reading the act of incorporation, said that in pursuance of the powers thus vested by the General Assembly of the State, the Maryland College of Pharmacy have heretofore conferred the degree of Doctor in Pharmacy on several of its members, and this evening the honorary degree of Doctor in Pharmacy is conferred on Prof. William Procter, Jr., Prof. John M. Maisch and Prof. Israel J. Grahame, of Philadelphia, and Prof. David Stewart, M. D., of Delaware.

Prof. DeRossett then announced the following list of graduates for 1871, viz:

John Baumgarten, Maryland,	Thesis	Gillenia.
Frank W. Blaney, “	“	Sanguinaria.
T. Briscoe Compton, West Virginia,	“	Achillea. “
Henry W. Hanna, Maryland,	“	Syrupus.

Ferd. Lautenbach, Maryland,
 John P. Piquett, "
 Edward A. Smith, "
 John J. Stigelman, "
 Albert E. Thompson, "

Thesis, Glycyrrhiza.
 " Matico.
 " Ipecacuanha.
 " Cochlearia.
 " Stramonium.

The degree of Graduate in Pharmacy was then publicly conferred on the graduates by George W. Andrews, Esq., President of the College. It was also announced that the following first course students were entitled to honorable mention, viz.: N. S. Pursell, of Virginia, John B. Thomas and J. H. Tucker, of Maryland, and Louis C. Roehle, of Germany.

The valedictory address, replete with practical advice to the young men, was then delivered by Prof. Claude Baxley, M. D., which concluded the ceremonies, and the audience adjourned.

The examinations of the Maryland College are conducted in writing and are applied to the first class students as well. Under the new Law this school of Pharmacy must soon attain a solid and influential status in Baltimore and its vicinity.

College of Pharmacy of the City of New York.

The annual meeting of this College was held at its Rooms in the University Building, March 16th, 1871.

The President, Mr. Wm. Hegeman, after addressing the Graduating Class, conferred the Diploma of Graduate in Pharmacy upon

William F. Brandt,
 Theodore M. Bung,
 Edwin Heues,
 Byron F. McIntyre,
 Thomas F. Main,

Henry C. Porter,
 Louis Riegel,
 Joseph A. Schwartzel,
 Joseph Weber,
 Conrad Wienges.

Mr. Edwin Heues received the prize of fifty dollars offered by Prof. W. DeF. Day to the student passing the best examination in Botany and Materia Medica. The College prize of fifty dollars to the student passing the best general examination, was also awarded to Mr. Edwin Heues. On behalf of the class Mr. Thomas F. Main responded, and handed the President an engrossed copy of the following resolutions:

At a meeting of the Students of the College of Pharmacy of the City of New York, held at their Lecture Room, Friday evening, March 10th, 1871, the following resolutions were unanimously adopted.

Resolved, that the sincere thanks of the class of 1870-71 are due, and are hereby tendered to the Lecture Committee and Officers of this College, for their efforts in securing to this class the excellent Lecturers to whom we have listened during the past session, as also for the many advantages offered for our instruction.

Resolved, that to Professors E. R. Squibb, C. F. Chandler, and W. DeF. Day, we return our hearty thanks for their kind attentions to the class, for their eminently instructive and entertaining Lectures, and for the kind and generous

manner in which each placed extra time and lectures at our disposal. Also for the Lectures delivered at the School of Mines by Prof. C. F. Chandler, by Prof. E. R. Squibb at his Laboratory, and the attractive illustrations of Botany and Materia Medica by Prof. W. DeF. Day.

Resolved, that we cordially commend the course of instruction to our fellow pharmaceutical students, and trust they will avail themselves of the excellent opportunity offered.

Resolved, that a copy of these Resolutions be sent to the President of the College, and that they be published in the pharmaceutical journals.

The Treasurer's report shows an excellent financial condition, but an effort is being made to increase the available resources of the College, which, it is hoped, will prove successful. The election of officers for the ensuing year then took place, which resulted as follows :

President, William Hegeman.

Vice-Presidents, Theobald Frohwein, Isaac Coddington, Wm. Neergaard.

Treasurer, William Wright, Jr.

Secretary, Edward L. Milhau.

Trustees, Paul Balluf, H. A. Cassebeer, Jr., P. W. Bedford, John Frey, John W. Shedden, Geo. C. Close, David Hays, A. W. Weismann.

As delegates to the meeting of the American Pharmaceutical Association in St. Louis in September next, P. W. Bedford, E. L. Milhau, William Hegeman, M. L. M. Peixotto, William Wright, Jr.

Minutes of the Philadelphia College of Pharmacy.

The Annual Meeting of the Philadelphia College of Pharmacy was held at the College Hall, March 27th, 1871. Dillwyn Parrish, President, in the chair. 40 members present.

The minutes of the last meeting were read, corrected and adopted. The minutes of the Board of Trustees were read by A. B. Taylor, Secretary of the Board, and approved.

The following report was read :

To the Philadelphia College of Pharmacy.

The committee appointed to propose the name of a suitable person for Editor of the American Journal of Pharmacy entered into correspondence with prominent pharmacutists in other cities, but having failed to obtain a favorable response, a majority of the committee, after due consideration, unite in offering the name of Prof. John M. Maisch, of Philadelphia, for election to that office.

CHARLES ELLIS,	} A majority
WILLIAM PROCTER, JR.,	
CHAS. BULLOCK,	
	of the
	committee.

Philadelphia, March 25, 1871.

On motion the report was accepted.

The following report from the Committee on Sinking Fund was read :

The Committee on Sinking Fund respectfully report that they have received from the professors, as tax on tickets, . . . \$1268 75

and have paid to Messrs Powers & Weightman, on acct. of mortgage, \$1250, with interest on it, \$18 75,	1268 75
They have also purchased one certificate of college loan,	100 00
And have in bank, to the credit of the fund,	48 00
There is also due the Sinking Fund, from matriculation fees,	380 00

which will it is expected, be paid in a few days.

Per Committee,

T. S. WIEGAND, *Chairman.*

The Librarian reported as follows :

The Librarian respectfully reports that he has been occupied in arranging, indexing and binding the manuscript theses in possession of the College; in this work he has been ably assisted by Messrs. Joseph P. Remington, S. Mason McCollin and H. D. Schell. The theses have all been bound and are ready for the backs and labelling.

He charges himself with cash received from Saml. F. Troth, late chairman of Library Committee,	\$133 78
Interest,	1 40

135 18

He asks credit for expense of binding, paper, title pages, &c.,	86 26
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Leaving balance on his hands,	\$48 92
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And stock to value of	20 00
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March 27, 1871.

The Publishing Committee reported as follows :

To the Philadelphia College of Pharmacy.

The Publishing Committee respectfully report that the several recommendations of the Committee, which were adopted in December last, have been carried out as follows :

1. The business pertaining to the Journal is all now transacted in the College building; the correspondence of the Journal is directed there, and, to a considerable extent, the exchanges are received there. As soon as the present Editor retires from service (April 1st) all the exchanges will be received at the College.

2. The Journal has been published monthly, three numbers having appeared, and the April number is ready to be closed with the minutes of this meeting.

3. A business Editor, Henry H. Wollé, has been appointed to attend to the advertising sheet, the distribution of the Journal by mail and otherwise, to attend to the business correspondence relating to the Journal, to keep the accounts in regular form, to make the collections and to pay the funds over to the Treasurer of the Committee, which duties he has carried out.

4. The authority to draw on the Treasurer of the College for the prime cost of Journals supplied to members, and as exchanges, will be carried into effect when the Committee are able to decide what is the proper sum to be charged.

The Committee were desirous to make a full report on the stock of the Journal, but the necessary time required to count all the numbers could not be devoted until the temperature of the stock room was milder than it has been through the winter.

They have, however, counted the volumes, which will give some idea of the amount of stock on hand :

There are 6 sets of 30 volumes each, not all consecutive.

3	"	33	"	"	"	"
5	"	28	"	"	"	"
1	"	32	"	"	"	"

15 sets 441 volumes.

There are twenty-six perfect volumes, varying in number from 1 or 2 to 129 each, making 1116 volumes, which, added to the volumes in sets, makes a total of 1557 volumes. These, at an average of two dollars each, make a sum of \$3114.

The remainder of the stock consists of a large quantity of odd numbers, in bulk equal to one-half of the perfect volumes. In some instances there are only one number missing, in many several numbers are required to complete the volumes. The business Editor has been requested to keep himself informed of those volumes nearly complete and buy numbers when they offer to complete them.

There are also a numerous collection of exchanges, mostly medical journals, but few of which are complete, and but few of a character suitable for the library, yet there are several exceptions, and these have been kept together.

The Committee are pleased to be able to say that the Treasurer's report, hereto appended, exhibits the very satisfactory balance of \$1424 in favor of the Journal.

In reference to the debts due the Publishing Committee, the business Editor has carefully gone over the books and reports that there is due the Committee, from parties where subscriptions were stopped in 1869 and a few since, \$522, and from persons in arrears, who yet receive the Journal, \$1128. Making a sum of \$1648 outstanding in debts. Besides these there are some other accounts in dispute, which have not been brought forward because they need further investigation.

In conclusion, the Committee desire to express their satisfaction with the new business arrangement, and believe it will eventually give entire satisfaction to the College.

CHARLES ELLIS,	} Committee of Publication.
JOHN M. MAISCH,	
A. B. TAYLOR,	
THOS. S. WIEGAND,	
WILLIAM PROCTER, JR.,	

March 27, 1871.

On motion of James T. Shinn, the Publishing Committee were requested to report at the meeting in June next the amount of cash on hand, and the estimated expenses of the Committee for the remainder of the year.

The Committee on Deceased Members read the following notice of John Horn.

John Horn, a member of this College since 1826, was born in the City of Baltimore, of German parentage, September 9th, 1803. His early education was received at St. Mary's College, Baltimore. He came to Philadelphia about the year 1820, and served his apprenticeship to the drug business with Matthias Pleis, whose place of business was located on 2d street below Brown. Matthias Pleis was a German emigrant, whose redemption was purchased by one of the Lenning family, and whom he served for a period of 3 years and 9 months.

In December 1823, John Horn commenced business on his own account at the N. E. corner of 3d and Brown, the property having been purchased for him by his father. This property was known at the time as the "haunted house;" during the war of 1812 it was rented as a rendezvous or barracks for soldiers. At the time he opened his store, there was no other drug store between the Delaware and Schuylkill, on Brown street, and none north of him until coming to that of Henry J. Squire, in Germantown.

So great was the success of John Horn, that he repaid the purchase money of the property from the profits of his first year of business, and being of a money making turn, he accumulated means rapidly. At the S. E. corner of 3d and Brown was an old family cemetery, known as the Coates and Brown family cemetery, occupying nearly one fourth of the square. This was purchased

by John Horn, who erected thereon what is known as Horn's Hall, together with the buildings. As one of the largest share holders in the Northern Liberty Gas Company, John Horn realized large profits from that successful enterprise, and was enabled to defray the expenses of the erection of the buildings on the cemetery lot, from the proceeds of one year's dividend of said Gas Company. His favorite motto was "that it was better to wear out than to rust out," and was consistent to his motto in his active business strife. He was at one time a member of City Council, and was a director in the Manufacturers and Mechanics Bank, also in the County Fire Insurance Co., and was the largest shareholder in the 2d and 3d streets and Green and Coates streets railroads. He was also connected for many years actively with the Northern Dispensary.

Although his health was impaired and threatened with pulmonary difficulty from neglected colds, he continued to visit his store, and attend to business until within a few days of his decease. He was thrice married, and leaves a widow and three daughters. He died on the 26th day of December, 1870, and was buried at Laurel Hill.

The Committee on Latin Labels reported a balance in favor of the committee of \$271 10. They also reported that they had concluded it inexpedient to publish any further editions of labels at present.

The following communication was read, addressed to the Secretary.

"Herewith we send specimens of the chemicals exhibited at the Semi-Centennial Anniversary on the 23d of February last, which please have placed in the cabinet of the College.

With best wishes for the prosperity of the Institution which has done so much for Pharmacy in this country, and hoping to exhibit again at the centennial, we are,

Very respectfully yours,
ROSENGARTEN & SONS."

The specimens, 23 in number, were handsomely put up, and bore labels setting forth that they were exhibited at the semi-centennial anniversary, Feb. 23d, 1871.

On motion, the Secretary was requested to return the thanks of the College to Messrs. Rosengarten & Sons for their interesting and valuable donation.

Wm. Procter, Jr., called attention of the College to a bill before the Legislature of Penna., designed to appoint an examiner of drugs for this State. As a copy of the proposed enactment had not come into the possession of any member of the College, it was deemed expedient that the College should keep itself informed of the purport of said bill. The following resolution was accordingly adopted.

"Resolved, that in view of a Bill being before the State legislature in relation to Pharmacy, that a committee of three be appointed to look after said bill, and if objectionable, to use proper endeavors to prevent the passage of the same."

The chair appointed James N. Marks, chairman, John M. Maisch and Robt. Shoemaker to that service. On motion, the President and Secretary were added to the committee.

On motion, a resolution was adopted, appointing Chas. Ellis, A. B. Taylor and Chas. Bullock a committee to obtain from the Solicitor of the College his

opinion as to the officers of the College who are, *ex officio*, members of the Board of Trustees.

The annual election being ordered, the chair appointed S. Mason McCollin and William B. Webb tellers. As the nominations were being made, Chas. Ellis asked to be relieved from further service on the publishing committee. A ballot being ordered, the tellers announced the election of the following officers:

President, Dillwyn Parrish.

1st Vice President, Wm. Procter, Jr.

2d Vice-President, Robert Shoemaker.

Treasurer, Ambrose Smith.

Recording Secretary, Charles Bullock.

Corresponding Secretary, Alfred B. Taylor.

Eight Trustees, (to fill the vacancies occurring at this date.) Robert Bridges, M. D., T. Morris Perot, S. S. Bunting, James T. Shinn, Daniel S. Jones, John M. Maisch, Thomas S. Wiegand and Joseph P. Remington.

Publishing Committee, Wm. Procter, Jr., chairman, Charles Bullock, John M. Maisch, Alfred B. Taylor and T. S. Wiegand.

Committee on Sinking Fund, Thomas S. Wiegand, T. Morris Perot and James T. Shinn.

Editor, John M. Maisch.

Librarian, Thos. S. Wiegand.

Curator, Jos. P. Remington.

On motion, then adjourned.

CHARLES BULLOCK, *Secretary*.

Minutes of the Pharmaceutical Meetings.

March 21st, 1871. The meeting was called to order by the President, and the minutes of last meeting adopted.

Mr. Boring exhibited a specimen of Compound Syrup of Sarsaparilla as improved by the addition of glycerin in place of part of the sugar. Several specimens from the large natural deposit of Phosphates, recently utilized by the Charleston, S. C., Mining and Manufacturing Company, were presented. Some of these are bones, vertebra, &c., of large animals, but others appear of irregular and indefinite shapes, so as to obscure their origin. The quantity of this material is immense, and it is readily obtained near the surface. According to the published analysis it contains about 29 per cent. of phosphoric acid, equal to about 63 per cent. of bone phosphate of lime; its chief use at present is in the fabrication of fertilizers. The subject was referred to Mr. Boring.

Prof. Maisch exhibited samples of *Vanilla planifolia*—Bourbon Vanilla. This variety does not possess the same delicacy of odor as the Mexican. The bean differs from the Mexican, being shorter, wider and terminating more abruptly at the ends. The price of this variety is \$5 to \$6 per pound.

Prof. Maisch made some remarks upon several varieties of Rhubarb not met with in our markets. These rhubarbs were grown in Austria, and marked *Rheum Emodi* and *Rheum Palmatum*; they are cultivated to a considerable extent, principally for dispensing to the poor, being very much cheaper in

price. The sample was handsome in appearance, and sold at \$5 to \$7.20, gold, for 108 pounds. This variety is so well prepared that it is very difficult, except upon close examination, to distinguish it from good Chinese rhubarb.

James T. Shinn presented a sample of Pure Oil of Citronella.

Mr. Gailard spoke of the Elixir of Pepsin, Bismuth and Strychnia, and the difficulty experienced by most apothecaries in preventing precipitation, and suggested forming a citrate of the quinia and strychnia with excess of citric acid, neutralizing the excess of acid with ammonia; by this means he obtained a satisfactory preparation. Some remarks were made upon Elixirs, particularly upon that of Iron, Quinia and Strychnia, which, as prepared by certain manufacturers, appears to be without unpleasant bitterness.

Remarks were made in reference to the stamping of proprietary articles and perfumes.

Then adjourned.

CLEMONS PARRISH, *Registrar.*

Abstract of Minutes of the Alumni Association

Of the Philadelphia College of Pharmacy, March 14th, 1871.

The meeting was called to order, President Wiegand in the chair. The minutes of the last annual meeting were read and approved. The minutes of the several meetings of the Executive Board were also read and approved.

Mr. Chas. L. Eberle moved to postpone the reading of the President's annual message until the session to-morrow.

The following names were proposed for membership:

John B. Raser,	Parker P. Ink,
E. D. Snyder,	Chas. F. Bolton,
C. C. Sniteman,	J. Willets Worthington,
Fred. A. Weber,	Chas. J. Kadish,
Dan. S. Fox,	Emmet Kannal,
Wm. Weber,	John D. Owen,
J. O. Oberhardt,	Wm. G. Ewing,
A. J. Odenwelder,	Geo. R. Kuhn,
John A. Weaver,	S. D. Barth Kuhn,
Emmor H. Lee,	John F. Hunneker.

An election was ordered, R. M. Shoemaker acting as teller, who reported their unanimous election.

The Treasurer's report was next read and submitted to the Auditing Committee, (Messrs. Newbold and Carberry) who reported that the report corresponds with the vouchers.

Mr. Jefferson made some remarks in reference to the sad accident to our late Vice-President, Ferris Bringham, (since deceased.) All the members present participating in the feelings of regret, the Secretary was instructed to enter upon the minutes this general and heartfelt sentiment of the Association.

The following members were appointed a Committee to nominate officers for the ensuing year:

E. Parrish,	Class of 1842.	S. Mason McCollin,	Class of 1864.
C. R. Keeney	" " 1845.	P. Jos. L. Carberry,	" " 1867.
C. L. Jefferson,	" " 1859.	C. Parrish,	" " 1868.
R. M. Shoemaker,	" " 1862.		

Said committee to meet after the adjournment of this meeting, and to report at the next session.

At the second session, March 15th, the following officers were elected and installed :

President, T. S. Wiegand.

First Vice-President, C. L. Eberle.

Second Vice-President, R. M. Shoemaker.

Recording Secretary, Clemmons Parrish.

Corresponding Secretary, P. J. L. Carberry.

Treasurer, Ewd. C. Jones.

To fill vacancies in *Executive Board*, Carl Fröh and E. D. Paxson.

President Wiegand, in a neat speech, presented to Chas. F. Bolton the gold medal offered by the Association, as a prize to the graduate passing the best examination ; to which Mr. Bolton responded, stating that his intercourse with the College and those connected with it, had always been very pleasant, and thanking the Association for the honor conferred upon him.

The President's annual message was next read, receiving the applause of the members present.

Mr. W. C. Bakes proposed getting up a course of Lectures during the coming fall and winter, under the auspices of the Association, proceeds to be devoted to the Laboratory fund. This seemed to meet with the approval of the members present.

The Association heard with feelings of sorrow of the death of Ferris Bringhurst. The chair appointed Jos. P. Remington, W. C. Bakes, Rich. M. Shoemaker, C. L. Eberle and T. S. Wiegand to draw up suitable resolutions expressive of the feeling of the Association, to which he had been so long attached.

C. PARRISH, *Secretary*.

Editorial Department.

ANNOUNCEMENT. The Editor takes great pleasure in announcing to the subscribers and friends of this Journal that, at the Annual Meeting of the College, Prof. John M. Maisch was elected its Editor, and that he will commence his duties with the May number. Prof. Maisch has been so long and favorably known as a contributor to its pages, and as a true working man in our profession, that he needs no further introduction, and has our earnest good wishes for a useful and brilliant career.

PROF. MAISCH requests that all correspondence and communications intended

for him, as Editor of the American Journal of Pharmacy, be directed to him at the College of Pharmacy, 145 North 10th Street, Philadelphia

THE RETIRING EDITOR TO HIS FRIENDS AND READERS.—The time having arrived when the Editor's resignation is to take effect, he may be permitted to say a few parting words to his friends and readers. Of the Journal itself he has little to say; whatever merits or faults his connection with its pages has had, may be known to all, and must receive the award which time will be sure to render. The path editorial has not always been found smooth and free from thorns; not a few instances have occurred where the line of duty has run very nearly athwart that of personal friendship, causing a feeling of soreness. At other times offence has unintentionally been given; yet, as the governing motive has been based upon a sense of rectitude, he has continued his course steadily onward, accepting the result. So far as is remembered, most of the wounds thus occasioned have kindly healed. That many errors in judgment have occurred is not improbable, and, in looking back over so long a record, there are many things that could now be better done, and some things omitted that should have been accomplished; yet, through all the happenings of this period, the constancy of the flow of friendly interest, which has reached him from members of the College and other friends, far and near, will ever be a source of grateful recollection and satisfaction; and to these he desires to extend his sincere acknowledgements, as well as to those editorial friends at home and abroad, who have recently spoken kind words in reference to his retirement from active service. In returning among his fellow-pharmacutists, the Editor disclaims the idea of ceasing to be a worker, and it is not improbable that he may occasionally claim a few pages as a volunteer, and in other ways to aid the cause of pharmacy.

THE PRACTICAL SCHOOL AT THE PHILADELPHIA COLLEGE OF PHARMACY.—This school was opened in October last by Prof. John M. Maisch under circumstances unfavorable to its immediate growth, the room not being ready when the lecture season commenced, and the apparatus and tests had to be obtained and prepared afterwards. Notwithstanding these drawbacks, eight young men took the course on Practical Pharmacy and seventeen that on Analytical Chemistry. The pharmacy course included the practical details of drying, powdering and sifting drugs for all purposes. Percolation (with the preparation of tinctures, fluids extracts, solid extracts, resins and oleo-resins). Distillation (with the recovery of alcohol and the preparation of distilled waters, spirits, etc., pill masses, pills, emulsions and other extemporaneous preparations, and finally the preparation and purification of pharmaceutical chemicals.)

The chemical course included proximate analysis and the preparation of proximate principles, (such as those of storax, opium, aconite, hydrastis and liquorice root), qualitative analysis of simple and complex compounds, inorganic bases, inorganic and the commoner organic acids, always with special reference to pharmaceutical wants.

The following is a list of the classes:

Class in Pharmacy.

E. C. Batchelor, Miss.
Jno. B. Elston, Mo.
Jas. F. Hurt, Mo.
Henry Kielhorn, Ind.
David J. Lewis, Pa.
Wren H. Light, Ky.
Henry Schmidt, O.
H. R. Thomson, Ind.

Class in Analytical Chemistry.

E. C. Batchelor, Miss.
Emiliano Causse, Cuba.
W. P. Carpenter, Iowa.
Jul. Jungmann, Pa.
Ch. J. Kadish, Ill.
Jos. Kaufman, Ohio.
Sam. Lemly, Jr., Miss.
A. J. Odenwelder, Pa.
M. F. Rinchart, Ohio.
Ch. Sniteman, Ill.
E. D. Snyder, Ohio.
Aaron Stern, Pa.
Lanc. Thomas, Pa.
Henry R. Thomson, Ind.
J. A. Weaver, Pa.
Fred. C. Weber, Ill.

John C. Wells, Vt.

PHARMACY IN NEW JERSEY.—The *Newark Register* of March 6th contains a copy of a petition sent to the Legislature against the Registry Law, recommended and urged for adoption by the New Jersey Pharmaceutical Association. As the Association represents a large number of the best druggists of the State, the petition must emanate from those who are opposed to the reform suggested by the Association and, consequently, to that class who advocate free trade in drugs and poisons without reference to the public welfare.

PHARMACY IN RHODE ISLAND.—The *Providence Evening Press*, of Feb. 28, contains the report of the State Board of Pharmacy, after one year's experience of the pharmacy registering law of that State. The reporters inform that there have been six meetings for business, and for the examination of assistant pharmacists. Five of the meetings were held in Providence and one in Newport. Most of the persons examined exhibited a fair knowledge of pharmacy as obtained from the shops, whilst but few were familiar with chemistry and botany. One of the greatest difficulties presented in the report was that of the sale of liquors by apothecaries. Owing to the stringency of the U. S. Law, small quantities of liquors for medicinal purposes can only be sold by prescription, hence the apothecaries are compelled to obtain a license from the government, by which they become regular liquor dealers, and, in order to repay the expense of the license, cater for business regardless of the uses made of the liquors. A temptation is thus opened to promote the improper use of these agents, as well as to their use by employees. They therefore ask for some modification of the law which will enable the apothecary to supply the simple needs of medicine without being compelled to become liquor dealers in a legal sense.

They also submit a revised draft of the law, which covers some omissions, and pray for its passage as a substitute for that of 1870.

PHARMACY IN ILLINOIS.—Our friends in Chicago have just introduced a bill into the Illinois Legislature asking for a law to regulate the practice of pharmacy and the sale of poisons in the State of Illinois. The bill is modelled after that of the Association at the Chicago meeting. We shall be glad to hear of its acceptance at the hands of the wise men assembled at Springfield.

PHARMACY IN CALIFORNIA.—By an accident the "Proceedings" of the Annual Meeting of the California Pharmaceutical Society were placed out of sight and overlooked till just as we are closing this number. The Annual Meeting occurred on the 10th of October, at San Francisco. The Annual Report of the Executive Committee is an interesting document, embracing a

variety of topics, such as drug legislation, chemical manufacturing in California and several papers on special subjects. A series of queries were called up, but there were but few replies, most of them being continued. The annual election was held and the following officers elected for the ensuing year: *President*, John Calvert. *Vice-Presidents*, Wm. Geary and G. G. Burnett. *Treasurer*, Wm. Bryan. *Recording Sec.*, W. A. Perkins. *Correspond. Sec.*, Jos. G. Steele. *Exec. Com.*, Messrs. Geary, Simpson, Mayhew, Steele and Wenzell.

HIVE SYRUP.—The following note, received from Mr. J. C. Wharton, the author of a paper on *Compound Syrup of Squill*, &c., at page 101 of the March number, should be considered in connection with that article:—

NOTE.—It should be remarked that, in filtering through carbonate of magnesia, the first portions of liquid often pass through *cloudy* and should be returned to the filter until the filtrate is *quite clear*. This will insure a transparent syrup.

The Year Book of Pharmacy, comprising abstracts of papers relating to Pharmacy, Materia Medica, Therapeutics and Chemistry; contributions from British and foreign journals from July 1, 1869 to June 30, 1870, with the proceedings of the British Pharmaceutical Conference at the Seventh Annual Meeting, held at Liverpool, Sept., 1870. London. John Churchill & Sons. Pp. 592; octavo.

This volume originated from a resolution of the British Pharmaceutical Conference, and is intended to be issued annually. The funds for its support are supplied by the Conference, each member being entitled to a copy. The Editor appointed for the work was John Cargill Brough, formerly Editor of the *Chemist and Druggist*, but the serious illness of that gentleman rendered assistance necessary, which was given by Mr. Joseph Ince, Prof. Attfield and others.

The work is a sort of *omnium gatherum* of matters pharmaceutical, without any attempt at classification, and appears to have been printed from the papers of each contributor without any effort at assimilation. This makes the book very readable, but renders it difficult to consult without going to the index every time. The term "Year Book," would indicate to us a systematic record of the doings of the year in pharmacy and its collateral sciences, with full information on minor subjects of general interest. The title of the book does not limit it to any country, therefore, the treating of pharmacy in a sectional sense is hardly to be recommended, and in this instance is a complete failure, as we will attempt to show. The first chapter is entitled American Pharmacy, consisting of abstracts of notes made in the United States by a London pharmacist (Mr. Robert Howden), and consists of personal observations and inquiries made at Boston, New York, Chicago, Milwaukee, Cincinnati, Baltimore and Philadelphia. This notice is well written, and in the main correct, as far as it goes, but in many instances fails, from lack of information of the true condition of pharmacy. This is followed by a few "American Recipes," which, if viewed as representing American pharmacy (and the inference is unavoidable), gives as false an impression of the pharmaceutical ideas originating

in this country, within the year indicated, as could well have been selected, and as no explanation is offered, it must be inferred either that the compiler was almost wholly without authorities for reference, or that the whole chapter is an intentional caricature, set prominently in relief against the second chapter, called *English and Continental Pharmacy*, which, curious to relate, contains twenty recipes of American origin, more than are given in the American chapter itself!

The chapters on materia medica and chemistry are fuller and better than what precedes them, yet are nearly without reference to American items of materia medica. As the chapter on Bibliography gives no mention of the last and complete edition of the U. S. Dispensatory, published in Feb., 1870, this meagreness is probably due to want of authorities or of time to consult them.

At the end of the obituary chapter is placed an autobiographical notice of Henry Deane, of Clapham, which appears not to have been intended for publication, but which is well worthy the perusal of all young apothecaries who are striving for knowledge under difficulties.

The last half of the volume (about 300 pages) consists of the proceedings and papers of the British Conference Meeting, at Liverpool, and a chapter by Mr. Ince, called a century of old books, which, being paged separately, is probably to be had as a separate pamphlet of 100 pages, which is full of curious extracts of old time pharmacy and chemistry, and reflects great credit on the diligence of the compiler. In conclusion, we may be permitted to hope that the faults of this volume have arisen mainly from the unfortunate illness of its Editor and the necessity of his collaborators of hurrying up the work at the last moment, and that the next volume will exhibit more homogeneousness. We would also respectfully suggest that one of the really valuable points of a good "year book" is the faithfulness with which the printed sources of the information obtained is recorded, not only in name, but in volume and page, giving original sources when possible. In this respect the "year book" is seriously in fault, and will perplex the future historian of pharmacy who may aim to sift out the true sources of the information which it offers.

OBITUARY.

EUGENE L. MASSOT, whose death we published last month, together with resolutions of respect by a public meeting, was a native of Louisville, Kentucky, where, according to information from Mr. Hubert Primm, he was born in 1824, and afterwards learned the drug business in Galena, Illinois. In 1852 Mr. Massot commenced business in St. Louis, at 4th and Almond, moving subsequently to 4th and Spruce, where he afterwards continued. His business maxim was that, "honesty is the best policy," which, aided by his good business qualities, built up for him a large and profitable trade, and established a character for fairness and uprightness that won the confidence of the medical and pharmaceutical professions and the public. To him largely is due the credit of the establishment of the St. Louis College of Pharmacy on a firm basis, giving his personal exertions and money. Mr. Massot became a member of the American Pharmaceutical Association in 1857; was elected one of its vice-presidents in 1862 and again in 1870, and had he lived would probably have

been its next president. He will be remembered by all who knew him as an honest, upright man, as a good citizen, and as an earnest, disinterested advocate of pharmaceutical education and organization.

DR. F. A. G. MIQUEL.—*The Pharmaceutical Journal* announces the death of Dr. Miquel the eminent professor of Botany in the University of Utrecht, and director of the botanic gardens at Leyden. "He occupied a high rank among systematic botanists for many years. His numerous publications have been principally devoted to the elucidation of the plants of the dutch possessions in the Indian Archipelego, and of the flora of Japan and New Holland. He has also produced several monographs on particular families, such as the figs, peppers, cycads, etc." His *Annales Musie Botanici Lugduno-Batavi*, in 4 folio volumes, with splendid illustrations, is his greatest work. The exact time and place of his decease is not mentioned.

DR. JAMES SHERIDAN MUSPRATT, whose decease was noticed in our last issue, was born in Dublin, March 8th, 1821. His father removing to Liverpool, his education was carried on in that city. He early evinced a taste for chemistry, travelled on the Continent and afterwards entered the Andersonian University, at Glasgow, to study chemistry under Prof. Graham there, and afterwards at London. He visited the United States about 1842, and in 1843 entered at Giessen, under Liebig, remaining two years, when his labors won for him the title PH. D., and for some time after pursued his studies in Germany. Dr. Muspratt founded a college of chemistry at Liverpool, which has been a useful institution. In 1854 he commenced his dictionary of manufacturing chemistry, by which he is best known. Dr. Muspratt was a member of several learned societies. In 1848 he married Miss Susan Cushman, the actress, who died in 1859. He was the scientific director of the chemical works at Flint, belonging to Messrs. Muspratt & Brothers, of which firm he was a member. He died of a lingering illness, at the early age of fifty.

FERRIS BRINGHURST died on the 16th of March in the 34th year of his age, at Wilmington, Delaware, his native city, and the scene of his pharmaceutical labors. On the morning of the 11th of March our friend arose in the anticipation of carrying out an engagement to give a lecture on water before the "Workingmen's Institute," and in the afternoon he set himself to work in preparing oxygen for its illustration. The apparatus used was a tube of wrought iron 3 inches in diameter and 5 inches long, the lower end closed with a plug shrunk in, the upper end with a wrought iron cap screwing on the outside of the rim. In the top of the cap, which was 2½ inches high, was an opening for charging the retort, closed with a screw plug. The neck of the retort, a curved piece of inch iron tubing 3 inches long, was screwed into the side of the cap with its projecting end opening upward, and extended by a joint of half inch tube bent at a right angle, connected with the gas bag tube. The usual charge was 5 ounces of chlorate of potassa with the proper proportion of black oxide of manganese, but on this occasion he had put in a larger charge to secure a full supply of gas. Mr. Bringhurst was operating in his laboratory on the premises, but not in the building where his store is located. He was alone, and from the

position of things after the explosion, it appears that he had placed the retort on the furnace, and when the reaction had commenced he had observed that the gas was not accumulating, and judging that the exit tube had become obstructed, he had lifted the retort off to the hearth, and had disconnected the gas bag, with the intention of removing the obstruction. The immense pressure of the constantly developing gas at this moment vented itself, whilst the operator was stooping over, by blowing off and shattering the whole top of the retort: the upper half of the neck tube, in ascending struck his forehead immediately above the left eye, burying itself several inches in the brain. The explosion was heard some distance, arousing the whole neighborhood. His father, Edward Bringham, Sr., and his partners, E. Bringham, Jr. and Z. James Belt, were all in the store, and hastening to the laboratory, a fearful sight was presented. Ferris Bringham was lying against a barrel, several feet from the furnace, the blood streaming from the frightful wound in his forehead, and all around bearing evidence of the violence of the explosion, every window being broken. He was carried to the yard, medical aid summoned, and by advice removed at once to his residence on West street. On Monday a piece of iron $2\frac{1}{2}$ inches long was removed. He never spoke, being in a stupor, yet at one time he seemed to retain some consciousness, and though unable to articulate, showed by pressure of the hand that he understood what had been said to him. He gradually sank, and early on Thursday morning, the 16th of March, quietly passed away without, probably, at any time having suffered pain. Thus early has closed the earthly career of one of the brightest minds, in the wide circle of American pharmacutists, it has been our privilege to know, admire and love. So genial, so true and earnest, so thorough and reliable in all that he did, so unselfish and generous in his intercourse with his professional brethren, so free from self-seeking and petty ambition in his endeavors for the advancement of the interests of pharmacy.

Ferris Bringham attended the lectures at the Philadelphia College of Pharmacy at the sessions of 1855—1856 and 1856—57; during his attendance he placed himself under the care of Dr. F. A. Genth in the study of analytical chemistry, and acquired those nice habits of manipulation for which as a pharmacist he was noted. He graduated in the spring of 1857, and subsequently became a partner in his father's business. He stood among the very foremost in the esteem of the American Pharmaceutical Association, which he joined in 1862 at the meeting in Philadelphia, and ever since has been an active and useful member, having, as Vice-President, been acting President at the Chicago meeting. He was also a prominent member of the Alumni Association of the Philadelphia College of Pharmacy, and had he lived two weeks longer he would have been elected a member of the Philadelphia College of Pharmacy under the new Constitution, having been proposed at the last meeting.

Ferris Bringham, though a young man, had moral excellencies, intellectual capabilities, and manly energies that were appreciated by those who knew him well, and which, had he lived, would have developed in the Association to its great advantage, for its true interests were dear to him, and he was prodigal of his labor in a good cause."

He was the President of the Wilmington Fountain Society, and also of the

Young Men's Free Library and Reading Room" association, and took a deep interest in promoting the instruction and elevation of the "working people" of his native city. The accident which cost his life happened in carrying out his benevolent intentions towards this class, in a scientific lecture on the properties and composition of water, to have been delivered free of cost to the Institute.

Ferris Bringham was also a good man. An editorial fellow townsman has said that he was "honored and respected by the whole business community, loved by a large circle of relatives and friends, remembered with gratitude by hundreds to whom his liberal helping hand has been extended again and again, in accordance with a systematic and careful habit of charity."

"All who ever came in contact with him will testify to his kindness of heart and suavity of manner. We have known him from his school days up to his death, and knew him as a moral, upright man, whose early manhood even was free from blot or blur, conscientious in the performance of his duties, just in his dealings with others, charitable to the suffering and the needy and who had a pleasant smile and a kind word for all."

For him, therefore, there is nothing to regret, for his was a useful and blameless life followed by a painless death, in the path of duty amidst the work he loved, and surrounded by those who loved him; but for the dear ones he leaves behind in the family circle, and especially her who was the chosen and happy companion of his pathway through life, the dispensation is grievous and hard to bear.

As we joined the sorrowful company who followed his remains to their last resting place by the beautiful Brandywine, we felt that the grave had indeed robbed our profession of one of its brightest ornaments and most earnest advocates.

THE ALUMNI ASSOCIATION of the Philadelphia College of Pharmacy have heard with feelings of deep regret of the sad accident, which has since resulted in the death of our much beloved colleague, Ferris Bringham, of Wilmington, Delaware, and the meeting desired the undersigned committee to express their feelings of sorrow at the loss of one with whom all had been associated so pleasantly.

We cannot recall a single instance in which his sympathies and actions were not at once enlisted on the side of truth and justice; and in his quiet, steady opposition to deception and insincerity, or indeed anything that would hinder the progress of the science he loved, or lower its standard, we see the manifested fruit of an inner life that was unselfishly engaged in benefitting his fellow men; though the accident which resulted in his death was a most painful one, our grief is mitigated by the thought that he was engaged, at the time, in the most laudable calling of serving his fellow man, and another name has been added to that list of martyrs who have lost their lives in various ways by generous self sacrifice.

We do most sincerely sympathize with the bereaved and afflicted family, and whilst we feel that we have lost a noble co-laborer, and will sadly miss his cordial greeting, his genial smile, and his polished pleasantry, we bow in submission to the will of our Father in Heaven, who doeth all things well.

Signed,

JOS. P. REMINGTON,
WM. C. BAKES,
RICHARD M. SHOEMAKER,

THOS. S. WIEGAND,
CHAS. L. EBERLE,
Committee.

THE AMERICAN JOURNAL OF PHARMACY.

MAY, 1871.

ON THE PREPARATION OF SUPPOSITORIES.

BY WILLIAM G. EWING.

(An Inaugural Essay.)

I have read most of the articles that have appeared in the *Amer. Journ. Pharmacy* for several years, upon the subject of suppositories; and have gained many valuable suggestions from Messrs. J. B. Moore, Chas. L. Eberle and others; but I have fallen upon a process not alluded to by any of them, that greatly facilitates this tedious, and sometimes very difficult, and troublesome class of prescriptions. The plan I have adopted is as follows:

First, procure a large, coarse tin grater—such as may be had of any tinner—and with it grate the cacao butter into a coarse powder, pass through sieve No. 20, and put it into a wide mouth bottle ready for use; next, take some pure white wax, grate, sift, bottle, and set it aside in the same manner as above. The fragments that will not pass through the sieve can be melted, and grated again after cooling. With these two substances on hand, the prescriptionist is prepared for any formula in the suppository line.

The management of the melting point of suppositories has been a matter of great difficulty, annoyance and delay, varying as it does with the seasons; but with this (grated material) we have a ready means of regulating it at will; for if the mass should be too hard—as in winter—the addition of a little olive oil will be found advantageous; or, if too soft—as in summer—the addition of the grated wax will bring it to the right consistence. In addition to the above ready means of controlling the melting point, it has the advantage of being

much more easily manipulated. For instance, take the following suppository from the U. S. Dispensatory, 13th edition, viz. :

R.	Tannic Acid	grs. 36.
	Benzoated Lard	" 44.
	White Wax	" 10.
	Oil of Theobroma	" 90.

The directions are to melt the wax and oil of theobroma with a gentle heat, and add the tannic acid and benzoated lard, previously rubbed together in a mortar, and mix all the ingredients thoroughly; pour the mixture, while it is still fluid, into suitable moulds of the capacity of 15 grains, or the fluid mixture may be allowed to cool, and then divided into 12 equal parts, each of which shall be made into a conical, or other convenient form for a suppository.

The above formula is easily expressed, but not so easily complied with in all cases, owing to the variable nature of the oil of theobroma, and also to the temperature of the season; but, accepting it as it stands, the advantage of the grated wax and cacao butter is very perceptible, since instead of melting one portion together, and rubbing the other portion in a mortar as prescribed, the whole may be at once mixed and rubbed together in a mortar, forming a plastic mass as easily rolled into lengths and divided as an ordinary pill mass; and each piece formed by the fingers into a conical shape, or, if desirable, pressed into suitable moulds previously dusted with lycopodium, as suggested by Mr. J. B. Moore. The following is a copy of a far more difficult prescription, that was brought to me by a patient to be filled one very warm night.

R.	Carbolic Acid	grs. xxx.
	Cacao Butter	ʒ iss.

Mix and make suppositories No. 10.

Here the prescriptionist is in a dilemma. If the carbolic acid and cacao butter are melted together they will not solidify on cooling; if wax be melted with the mixture, considerable time is occupied in adjusting the proportions, as it is necessary to test it by allowing portions to cool from time to time, and adding wax by degrees until the proper consistence is attained; meanwhile the carbolic acid is evaporating, and the efficacy of the suppositories being impaired. Having the grated materials at hand, and no other recourse but to add a sufficiency of wax, it was immediately and easily done by rubbing it

in until the proper consistence was attained, the amount of wax required being 70 grains; the prescription was much more quickly dispensed than by any of the usual methods, and as there was no heat employed in the process there could have been no evaporation of the carbolic acid. In the above case, the grated wax and carbolic acid were first well rubbed together, and the cacao butter added last.

As no allowance was made for the addition of wax, the size of each suppository was slightly increased, (though not materially) and, as each contained the exact proportion of its active ingredient, the design of the prescription was executed. The weight of each suppository might have been left unchanged by omitting enough cacao butter to balance the wax that was added.

It is needless to repeat examples, though many difficult ones might be given from actual experience; it is sufficient to state a few general principles.

When dry substances are prescribed, they should be reduced to fine powders (if not already so) then thoroughly incorporated with the grated cacao butter, and rubbed in a mortar until the mixture becomes a plastic mass easily rolled into lengths, divided and formed into suppositories. Should moist substances, such as extracts or any articles not dry, be prescribed, they may be rubbed first with about an equal bulk of the grated cacao butter, and afterwards readily combined with the remaining ingredients.

As a general rule, all substances used in medicating suppositories must be either in the state of a fine powder, or a uniform paste; the prescriptionist must decide upon the more easily attainable state.

The advantages of using the cacao butter in the grated state are numerous. It furnishes the means of easy manipulation, of readily adjusting the melting point, of avoiding the delay of melting and cooling, and the use of ice which is not always procurable, of thorough and perfect incorporation of its ingredients, of exactness with which the mass may be divided; besides the satisfaction it gives the prescriptionist of *knowing* that no separation nor subsidence of any of its ingredients can possibly take place, which certainly cannot be felt when the substance is *melted* and moulded.

ON THE PRESERVATION OF PHARMACEUTICAL APPARATUS
FROM BREAKAGE BY CHANGE OF TEMPERATURE.

BY ROBERT SIMPSON.

(From the Author's Inaugural Essay.)

One of the most serious losses to which the apothecary is subject, is that caused by the constant breakage of glassware. Almost everything we handle is made of glass, and some of it is constantly being broken. The causes of this constant breakage are mainly two; carelessness and disobedience of the laws of nature. In regard to the first cause, little need here be said; the remedy is with each apothecary himself, and it rests with him whether to apply it or not. In regard to the breakage of vessels caused by disobedience of the laws of nature, I desire to present a few thoughts, confining myself mainly to the consideration of accidents caused by disobedience of the law so often disregarded by us. I refer to that which teaches us that, glass being a very bad conductor of heat, vessels made of it will generally break, if suddenly heated on the inside, by pouring in of hot liquids while the glass is cold, or suddenly cooled by the pouring in of cold liquids while the glass is hot. We all know that as the hot liquid strikes the bottom of the vessel, the layer of glass in contact with the hot liquid is expanded, and owing to the inferior conducting power of the glass, the lower layers do not become heated in time to expand with the upper. The unequal expansion causes such a strain upon the cooler layers of the glass that they are broken. When cold liquids are poured into hot vessels, the inner layers are suddenly contracted, and the same result ensues as in the first instance. This law is known to all apothecaries and yet is constantly disregarded. In many of our operations we desire to know the exact measurement of hot liquids; we do not like to use metallic measures, and have not the same confidence in their accuracy that we have in the accuracy of measures of glass. Under these circumstances we must either wait for the liquid to cool or risk the breakage of the glass measure.

The well known fact, that well made vessels of thin glass are less liable than others to breakage from change of temperature, is frequently taken advantage of for some operations, but for general practice is impracticable. It is between two and three years since a process was adopted by me, by means of which I have been enabled

to avoid all loss of glassware from sudden change of temperature. During that time I have always been in the habit of making the solution of citrate of magnesia with hot water, and filtering it at once into glass vessels. I have always strained hot syrups into glass bottles, and have been in the habit of measuring hot liquids in ordinary glass graduate measures. Fruit syrups made in the summer season, I have always bottled while hot in ordinary bottles, and hot liquids of every kind I have handled in the same manner. In all this time I have never broken or had broken in my store a single bottle or vessel from sudden change of temperature.

One day a man who, from his conversation, I supposed to be an old sailor, stopped in the store. After making some slight purchase, he opened a wandering conversation with me on various subjects, and finally, after talking about spiritualism, magic, etc., he began to speak on matters which, if not scientific, are at least curious. Among other matters he mentioned the fact that, in making hot punch, he had observed that if the hot liquid be poured into a cold glass, under ordinary circumstances, the glass will generally break; but if a spoon be placed in the glass, there will be no breakage. I had nothing to say at the time, but it struck me that there was a thought which might be of service to the profession. I have since ascertained that my maritime friend is not the only one acquainted with the punch making process. It has been known to certain persons for many years—was known seventy years ago to my grandfather. It occurred to me that there is nothing in the peculiar form of the spoon and glass to prevent the breakage, and that, if the statement be true of the spoon and tumbler, the principle will also apply to a rod and bottle. I tried a few simple experiments, which satisfied me that the principle is of use, and have employed it in practice ever since. I have on hand a number of metallic rods, and when I have occasion to pour a hot liquid into a cold bottle, jar or measure, I simply place a metallic rod in the vessel, and slowly pour the hot liquid down the rod. With proper manipulation and the adoption of this process, I am satisfied that no apothecary need ever lose a single bottle by breakage caused by change of temperature.

The rule may be applied both ways. After a hot liquid has been placed in a vessel protected by the rod, the liquid may be poured out, the rod replaced, the vessel washed at once with cold water and used for any other purpose. Fluid extracts while evaporating may be at

once measured in glass graduates and returned to the water bath, and the graduate may be washed and used for any other purpose immediately. This much I know, but in regard to the explanation my mind is not by any means so clear.

On first applying the principle, the idea presented itself that the result was due to the conduction of heat by the metallic rod. It would have been easy to account for the circumstances in this way, were it not for two facts. First, the rod when held in the hand at a distance from the bottle, does not appear to become heated; and secondly, the liquid in the bottle continues hot. These circumstances led me to look for some other cause, and induced me to engage in a series of experiments, with a view of ascertaining the cause of the phenomenon.

[The author proves by careful experiments that neither heat nor electricity is conducted off through the metallic rod, and then proceeds:]

Experiment XIII. Placed ten cold bottles in a row and filled them with boiling water, using the *same rod* every time. I noticed that the sixth bottle broke, and after that two more of the four. On removing the rod from the last bottle, I observed that where it had been in the bottles it had become very hot. This led me to think of

Experiment XIV. Took three good, wide-mouthed, pint bottles, cooled them by immersion in cold water (40° F.) for twenty minutes. Placed on the bottom of a tinned iron vessel a rod of iron, filled the vessels with water, caused it to boil with the rod in it, allowed it to boil for ten minutes, so as to have the rod and water of the same temperature; took out the rod and placed it in one of the bottles, and poured boiling water down the rod into the bottle; proceeded in the same way with the other bottles. Two of the three bottles were broken. These experiments showed me, that after a rod has absorbed a certain amount of heat it is of little or no avail.

Experiment XV. Filled a cold bottle with boiling water, using a rod of iron; cooled the bottle, placed the rod in water and boiled it. After one hour placed the hot rod in the same bottle and poured in boiling water as before. The bottle was broken. These experiments led me to the conclusion that the effect is due to the cooling effect upon the first portions of the water caused by the *absorption of heat* from the water by the rod. These first portions of the water being considerably cooled by their passages down the cold surface of the

rod, are still hot enough to warm the surface of the glass, but not hot enough to cause it to crack. They form a layer of moderately warm liquid on the surface of the glass. The next portions of water coming down are somewhat warmer, and are followed, toward the end of the pouring, by liquid which is quite hot; but the bottle has been gradually warmed by the first portions of the liquid, so that it will not now crack when the hot liquid is poured in, as there is no very sudden change of temperature. This idea suggested to my mind

Experiment XVI. Procured ten common pickle bottles made of green glass, flat sided and tapering the entire length, so that the bottoms were $4\frac{1}{2}$ inches wide, while the tops were only $1\frac{1}{4}$ inches, the width of the mouth. Into each of these bottles I placed a rod in such manner that the lower end rested on one end of the bottom, and the upper pointed diagonally upward. The bottles were cooled and boiling water was poured in. Owing to the position of the rods, most of the water fell off them soon after entering the bottles, and had not time to be cooled by passing all the way down on the cold metal. The water fell on the bottoms at a point two inches from the ends of the rods. Out of the ten bottles, eight were broken.

Experiment XVII. Took a good, wide mouthed, one pint bottle, cooled the bottle and placed in it a rod of brass, poured in boiling water until full, and immediately plunged in a thermometer. The mercury in the thermometer rose only to 181° , showing that 31° of heat had been lost by the entire mass of liquid in passing down the rod. This circumstance suggested

Experiment XVIII. Procured a good, wide mouthed bottle, of clear white glass. The bottle was $2\frac{3}{4}$ inches in diameter at the bottom, and $6\frac{1}{4}$ inches high to the shoulder. Placed in it a thermometer and brought the bottle to a uniform temperature by filling with water at 50° F. and placing it in a bucket of the same water. Allowed the thermometer to remain in the bottle, placed in the same bucket a rod of brass and allowed all to remain for twenty minutes; so that bottle, rod and thermometer tube might be of the same temperature. Heated water to boiling in a vessel having a good spout. Before placing the bottle in the bucket, I had pasted on it a strip of paper, graduated to show the points by which it was filled by two, four, six, eight, ten, twelve, sixteen and twenty fluid ounces. After removing the bottle from the cold water and emptying it, I placed in it the brass rod and thermometer. Poured boiling water down the rod to the first mark, re-

placed the water on the fire and observed the thermometer; filled the bottle to the next mark and observed the thermometer again. Continued in the same manner until the vessel was full, replacing the water on the fire each time so as to keep it constantly boiling. The results were as follows:

At the two ounce point, the mercury stood at 130° , showing that the first two fluid ounces of the water had lost 82 degrees of heat in passing down the rod; at the four ounce point the mercury stood at 160° , showing a loss of 52° ; at the six ounce point it stood at 168° , at the eight ounce point it stood at 170° , at the ten, twelve, sixteen and twenty ounce points it stood at 172° , 175° , 179° and 181° respectively; showing losses of 42° , 40° , 37° , 33° and 31° .

These experiments *almost* satisfy me that I am right in the supposition before expressed, that the effect is due simply to the absorption of heat from the liquid by the rod. Whether I am correct or not in the explanation can make no difference in regard to the utility of the process. Of course the success of the process depends almost entirely upon proper manipulation. To insure success, I recommend that the rod be placed on the centre of the bottom of the vessel, that it be held perpendicularly, so as not to touch any part of the side or lip, that it be of such length as to project six inches above the top of the bottle, that the lip of the pouring vessel be placed against the rod, and that the liquid be poured slowly so that none of it may leave the rod until it reaches the bottom. Rods of about the thickness of $\frac{1}{4}$ of an inch will be found most convenient. When a funnel is used, the rod cannot be placed perpendicularly, but may be so placed that the point of the funnel rests against the rod. As to the material of which the rods are made, it seems to make very little difference; I have generally used rods of iron, as that metal is least liable to contaminate medicinal substances. Rods of copper or brass will answer, and for liquids containing tannin are to be preferred. If I am correct in my explanation, it will naturally follow that rods which are the best absorbers will be most efficient; and consequently that rods made of rough iron will be the best. The idea of using rods of glass never entered my mind until lately, when I performed the eleventh and twelfth experiments. The glass rods answered in these cases, and for liquids which would be injured by contact with metals are to be preferred, but must be used with great care on account of their inferior absorbing power.

ON PRESERVATION OF THE OILS OF ORANGE AND LEMON.

To the Editor:

Showing a friend, a few days ago, some oil of lemon, which I had kept fresh and fragrant for over one year, he urged me to communicate the process to the Journal for publication.

The operation is as follows: To every pound of oil 1 oz. of alcohol is to be added, and well mixed; then 1 oz. of water is put with it, which again withdraws the alcohol from the oil, and collects at the bottom of the bottle as dilute alcohol.

The oil I have treated in this manner was in a large quart bottle, hardly more than half full, and is to day as nice as when first purchased.

In trying to explain to myself the theory of this action, the oil was closely observed, and a resinous film was found floating on the surface of the dilute alcohol. Whether the separation of this resinous film preserves the fragrance of the oil, or whether the presence of water has so good a result, I have not yet determined, but am certain that the general theory of deterioration by contact with air does not hold good in this case. Precisely the same effect was observed with oil of orange, and it was an agreeable surprise to find the experiment work so well with both oils.

I would like to add, that the resinous film observed seemed to be in much larger quantity in the oil of orange, and for that reason I think this is the true cause of its spoiling more rapidly than the oil of lemon.

I send you a sample of each of the oils.

Very respectfully,

CARL FRUH.

Philadelphia, April 6th, 1871.

Remarks by the Editor. The fact that a small amount of alcohol added to the volatile oils of the aurantiaceæ preserves them, is known to many wholesale druggists, as well as pharmacists, and for many years we have preserved these volatile oils by the addition of 1 oz. of alcohol to a pound of the oil. The subsequent addition of a small quantity of water probably does not entirely remove the alcohol dissolved in the volatile oil. We would suggest to the author to continue his experiments and ascertain how much alcohol remains with the oil. It is very probable that the removal of foreign resinous and other matters has the effect of retarding oxidation by the atmosphere.

UVA URSI.

BY JULIUS JUNGSMANN.

(Condensed from the author's Inaugural Essay.)

[The author gives a good botanical description of the plant and its habitat; he describes the drug, refers to its introduction in medicine, and reviews the analyses made since 1809 to the present time, when he proceeds to his own experiments. The thesis was accompanied by specimens of most of the principles isolated.]

A quantity of coarsely powdered *Uva ursi* leaves was exhausted with cold water by percolation, the infusion heated to the boiling point, strained, a greenish flocculent coagulum of albumen was left on the strainer; the infusion, after having been more concentrated, was treated with freshly prepared hydrated oxide of lead, until it would no longer produce a precipitate; this was separated by a filter. The filtrate still more concentrated by evaporation, was divided into two parts, the first was set aside in a warm place to evaporate spontaneously, the second was treated with strong alcohol; this produced a bulky precipitate of gummy matter, which was removed by filtration; the alcoholic filtrate was again divided into two portions, the first set aside to evaporate spontaneously, the second evaporated to a syrup and then treated with ether; the different ethereal solutions were mixed and evaporated at common temperature. The residue consisted of a mass of nearly colorless prismatic crystals of considerable size, of a bitter slightly acid taste, with a small quantity of resinous matter of peculiarly disagreeable odor adhering—Ericolin.

They could be easily purified by either washing them with ether, which would dissolve out the resin, or else by dissolving them in a small quantity of boiling water, filtering and recrystallizing; thus purified from water they were inodorous, not near as large, but small needles having a silky lustre.

The alcoholic solution yielded a dark colored extract nearly black: this was redissolved in alcohol and treated with animal charcoal, filtered and again evaporated spontaneously; yielded, after being pressed and dried, yellowish white crystals of a flocculent character having no odor.

The aqueous solution, which had been set aside in a warm place was found, after about two weeks standing, to consist of a soft extractive mass, covered all over the surface with small white crystals, very dif-

difficult to remove on account of the large amount of black, gummy extractive adhering to it. The crystals contained in this mass could only be obtained after long and repeated treatment with animal charcoal; to remove coloring matter and other impurities, it might be purified by precipitating the coloring matter by a solution of *alum*, but this mode of proceeding can only be recommended when *arbutin* is the only object in view, otherwise it is objectionable, as it complicates the process. A quicker way, however, to obtain the crystals, I found to be by treating the extractive mixture with a mixture of alcohol and ether, in which they readily dissolve, leaving behind nearly all the impurities; as thus obtained the crystals have, in their moist condition, a yellowish color, becoming nearly white when dried; they possessed the same properties as those obtained previously.

All the crystals obtained by these different processes proved to be *arbutin*, the discovery of which was first announced by Kavalier in 1852.

A second quantity of leaves was reduced to a coarse powder, decocted with water, the decoction strained and precipitated with neutral acetate of lead, the precipitated lead salt was filtered off and the filtrate was treated with basic acetate of lead, until a precipitate was no longer produced, this being filtered out. Sulphuretted hydrogen gas was passed in the filtrate until all the lead was precipitated; the sulphuret of lead was then removed by a filter, and the excess of hydrosulphuric acid by heating the filtrate; this was evaporated to a soft extract, redissolved in water, treated with animal charcoal, then again filtered and evaporated and, while hot, set aside. After about 24 hours standing the bottom of the vessel was covered with bunches of small crystalline needles of *arbutin*; these were pressed and dried between filtering paper and purified by redissolving them in a small quantity of boiling water, and again allowing the crystals to separate; these when pressed and dried, consisted of small prismatic needles having a silvery lustre. This second process for obtaining the *arbutin* is in the main points the original one of Kavalier, except that he does not precipitate with *basic* acetate of lead, which, however, removes nearly all the gum and coloring matter, and thereby facilitates the crystallization to some extent.

Arbutin generally crystalizes from ether in prismatic needles of considerable size and perfectly colorless from an alcoholic solution, in small acicular crystals of a white color, and in small bunches of needles

from water; it is neutral in its behaviour, very soluble in warm or hot water, less in cold water or alcohol, more in hot alcohol, very sparingly in ether; a concentrated solution of arbutin is precipitated by strong alcohol or ether added to it, but the precipitate rapidly disappears on shaking. Concentrated sulphuric acid or hydrochloric acid added to the crystals on a small plate, gradually dissolves them without change of color. With nitric acid the crystals first turned black, and then slowly dissolved, the acid assuming a yellow color and giving off fumes of nitrous acid. Arbutin in aqueous solution does not affect an alkaline solution of sulphate of copper, the salts of lead, acetate and subacetate do not precipitate it, salts of iron have no effect upon it; other reagents for organic bodies as tannic and gallic acid, bichloride of mercury, nitrate of silver, iodide of potassium and bichloride of platinum were tried without any results.

While experimenting with these reagents, I accidentally found a very characteristic and remarkable test for arbutin; when a solution of arbutin in water is rendered alkaline by ammonia, or any other caustic or carbonated alkali, and then phosphomolybdic acid is added, a blue color is produced; in strong solutions the coloration is of a deep azure blue, but the bluish hue can be observed even in very dilute solutions. One grain of arbutin was distinctly indicated in twenty pints of water (1 in 140,000); this reaction does not occur with molybdate of ammonia, nor does it take place when phosphoric or phosphomolybdic acid is acted upon by an alkali alone.

A solution of arbutin may be perfectly colorless but still impure; when to an impure solution of arbutin, ammonia or any caustic or carbonated alkali is added, a deeper, sometimes orange color is produced, while a solution of pure arbutin is not affected in this way.

[The author now describes the composition and glucoside nature of arbutin and the mode of obtaining hydrokinone, the literature on the subject being reviewed and compared with his experiments.]

E. C. Hughes, in an essay on *Uva ursi*, published in the American Journal of Pharmacy, 1847, describes a crystalline principle which he obtained from the leaves and to which he gave the name "Ursin." This ursin, although it has not been noticed in European literature, has received some attention, and has generally been regarded as a distinct principle in American works. As this was obtained before the known existence of arbutin, and as its mode of preparation is similar to that

of arbutin, I was led to suppose that the two might perhaps be identical: to satisfy myself, I prepared some ursin according to Hughes' method, which consists in maceration and percolation of the leaves with cold water, precipitating the tannin by a solution of gelatin, filtering and evaporating to dryness, treating the remaining extract by strong alcohol, the alcoholic solution with animal charcoal, filtering and evaporating spontaneously. By this process an acicular crystalline mass, to which a small quantity of resin adhered, was obtained having nearly all the properties of arbutin; the solution rendered alkaline, produced a blue color with phosphomolybdic acid, and it yielded, when boiled with dilute sulphuric acid, the same product of decomposition, hydrokinone, besides separating ericolin.

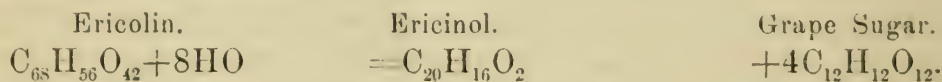
Hughes states, however, that his ursin was precipitated by carbonate of potassa and by the solution of subacetate of lead, while it was not affected by the *tincture* of chloride of iron; but as he uses a solution of gelatin to precipitate the infusion of the leaves, he only gets rid of the tannic acid while the gallic acid remains in solution, and is afterwards obtained together with the arbutin, (his ursin). A solution of this mixture, then, of course precipitates with basic acetate of lead, but then it ought to be affected by the salts of iron; but the *tincture* which he used is a very uncertain test, owing to the free acid it contains, which does not indicate small quantities, as in this case, while the solution of subacetate of lead precipitates even the smallest trace of gallic acid. Carbonate of potassa would produce a slight change in the color, but an actual precipitation did not take place. The ursin of Hughes must therefore be considered as an impure arbutin.

[The author then minutely describes the action of nitric acid on arbutin and the production of binitro-arbutin, discovered by Strecker; also, the decomposition of this compound into sugar and binitro-hydrokinone, after which the effect of chlorine upon arbutin is considered.]

Arbutin has also been found abundantly in *Chimaphila umbellata*, and it probably exists in a number of ericaceous plants. Its medical properties have never been practically applied; it was at one time believed to represent the diuretic properties of *Uva ursi*, and Hughes states that one grain of his ursin proved a powerful diuretic. The celebrated pharmacologist, Dr. Schroff of Vienna, who experimented with pure arbutin, states, however, that it possesses no diuretic pro-

perties at all; he gave it in doses as high as eight grains, and could not detect it in the urine.

When the mother-liquor from arbutin is heated with a dilute acid (sulphuric or muriatic) a resinous body separates, which has received the name of ericolin; this again is a glucoside, which, when treated with a dilute acid, splits into grape sugar, and an odorous substance having the character of a volatile oil, ericinol; both have been noticed already by Kavalier in his investigation. In preparing ericolin from the mother liquor of arbutin, I found that a portion of ericolin is decomposed as soon as it forms into ericinol, giving rise to the strong disagreeable odor of the latter. Ericolin is a dark brown resin, becoming somewhat lighter when dried and rubbed to powder; its chemical composition is $C_{68}H_{56}O_{42}$. Its decomposition into ericinol is shown by the following:



[The literature on ericinol and ericolin is now reviewed, and their occurrence in different plants spoken of. The precipitate, obtained with hydrated oxide of lead was found to contain tannin, gallic and malic acids, but to be free from tartaric and citric acids. The precipitate obtained by adding alcohol in a concentrated infusion of the leaves, contained gum, glucose and a lime salt. The leaves, previously exhausted with water, were treated with ether, and Trommsdorff's urson was prepared from the ethereal tincture (see Am. Journ. Ph., 1854.)]

Trommsdorff's process directs the ethereal extract to be washed by ether before treating with alcohol; this removes, besides the coloring matter, some fatty matter; but when operating upon larger quantities, I believe that animal charcoal will answer the same purpose. Another way to prepare urson is to percolate the leaves, previously exhausted by water with strong alcohol; the dark green tincture deposits already on standing a large quantity of nearly white urson, which only needs recrystallizing; the remainder of the tincture is evaporated, treated with water, and then washed with ether and recrystallized from alcohol. Urson, when pure, possesses neither odor nor taste; it is insoluble in water, sparingly soluble in alcohol and ether. It is not affected by alkalies or dilute acids.

Concentrated sulphuric acid turns it black and gradually carbonizes it, the acid assuming a red color. Concentrated nitric acid turns it yellow, gradually dissolving it, giving off nitrous acid. When heated,

urson melts into an amorphous transparent mass ; at a still higher temperature it boils and sublims in a test tube unchanged. Its medical properties have as yet not been ascertained, at least no physiological experiments have been made with it, and very probably it is entirely inert. A small quantity of *volatile oil* was found in the aqueous solution of the ethereal extract, besides some tannic and gallic acids.

The organic constituents of *Uva ursi* as obtained by this investigation, therefore, are :

Arbutin, and its product of decomposition, hydrokinone ; ericolin, ericinol, urson ; (ursin, the diuretic principle of Hughes, was found to be impure arbutin ;) tannic, gallic and malic acids, then a small quantity of volatile oil, fatty matter, wax, gum, sugar, albumen, coloring matter, etc.

The test for arbutin may perhaps serve for finding this principle, in plants, without isolating it, for, an infusion of *Uva ursi*, when diluted with sufficient water to make it perfectly colorless, and then rendered alkaline, produces, on the addition of phosphomolybdic acid, the blue reaction due to arbutin ; when the alkali (ammonia) is added to the diluted colorless infusion, a color (orange) again appears, owing to the astringent acids present ; this color must also be removed by again diluting it with water, before the final addition of the phosphomolybdic acid.

This test cannot be applied to a strong infusion because phosphomolybdic acid reacts with tannic and gallic acids green, and the blue color cannot then be observed.

ERYTHROCENTAURIN IN AMERICAN CENTAURY.

BY JOHN F. HUNEKER.

(From the Author's Inaugural Essay).

This principle was discovered in European Centaury (*Erythræa centaurium*), a few years ago, by Méhu, a French chemist, who obtained it in the minute quantity of one grain in three thousand grains of the herb. The question very naturally arose, whether American Centaury (*Sabbatia angularis*) also contained this principle ; the experimenter will prove that it may be obtained.

The flowers and leaves of *Sabbatia angularis* to the amount of two pounds were exhausted with one gallon of water, a portion of which was evaporated by a water bath, and allowed to stand to deposit the

apotheme. This was separated by filtration, and strong alcohol added to the filtrate, which precipitated gum. On again filtering, the infusion was evaporated to the consistence of a syrup and, on cooling, washed with strong ether, which took up erythrocentaurin and deposited it on spontaneous evaporation. Erythrocentaurin, as thus obtained, is a non-nitrogenous principle, in small acicular crystals, which are transparent, but in this case were contaminated with yellow coloring matter, and, being in such a small quantity, the experimenter feared losing them in decolorizing.

The crystals have a sharp acid taste, reminding one of tobacco, and are soluble in alcohol, ether, water, alkalies in solution, and acids, but insoluble in fixed and volatile oils, being also slightly volatilized by heat.

The only proofs that they are similar to erythrocentaurin of the European Centaury are: 1st, that they exist in the same minute quantity. 2d, that they are *reddened* by solar light, but if dissolved and recrystallized, regain their original color. Therefore there is not a doubt but that these principles are similar in composition and character.

[The author made a series of experiments to determine the proximate composition of American Centaury, and found, besides erythrocentaurin, resin, chlorophyll, fatty matter, gum, albumen, pectin, bitter extractive, trace of volatile oil, an organic acid, red coloring matter and salts. The author was unsuccessful in his attempts to isolate and crystallize the bitter principle.

The author regards the aqueous extract as the most concentrated pharmaceutical preparation; he gave ten grains of it to a half grown cat, which in a short time appeared to be under the influence of a narcotic sedative; after sleep, lasting for two hours, violent purgation set in, causing death in 24 hours.—EDITOR.]

CRAB ORCHARD SALT.

By JOHN T. VILEY.

(From the Author's Inaugural Essay.)

This salt is obtained from the mineral waters near Crab Orchard, a small town in Lincoln County, Kentucky, from which place it derives its name. In the year 1824 or 1825, a gentleman by the name of James Dollins first noticed on his farm a crystalline salt.

Not knowing, at first, what it was, he began to investigate the matter, and found it was left after evaporation of the water by the heat of the sun. He carried home some of the water, and, by boiling it down, obtained a small quantity of salt, which he carried to Crab Orchard, to learn what kind of salt it was. Physicians immediately pronounced it Epsom salt; but, upon careful examination and experiment, it was found to contain other constituents than sulphate of magnesia, and also to differ somewhat in medicinal effects, so they named it Crab Orchard Salt, in contradistinction to Epsom salt. It was soon after obtained in different localities in that section, and, in a short while, farmers began to make it in small quantities for home consumption; gradually it became known to parties, from different parts of the country, visiting the town, to try the medicinal effects of the waters in the neighborhood, of which there are several excellent varieties, until it is now used, in preference to Epsom salt, in all parts of Kentucky and most of the adjoining States.

Crab Orchard salt is made by simply boiling the water, from the springs, in large iron kettles, to a certain point, then allowing it to settle, (the more thoroughly it settles, the dryer and nicer the salt will be;) the clear liquid is then decanted and evaporated to dryness, being stirred near the close, to granulate the salt. Nine gallons of water yield a pound of the salt. About six thousand pounds of the salt was produced in 1869. This salt is said to be counterfeited to a considerable extent in Louisville and Cincinnati.

There is quite a number of mineral springs in the vicinity of Crab Orchard, differing slightly in composition, as will be seen from the analyses of the Grove, the Field and the Sowders springs, published with the second report of the Geological Survey of Kentucky, made, in the years 1856 and 1857, by David Dale Owen.

The salt is obtained from the two last-mentioned springs, and contains, after having been dried at 212° F., in one hundred grains, as by analysis of Dr. Robert Peters, of Lexington, Ky.:

Sulphate of Magnesia,	. . . . .	63.19
Sulphate of Soda,	. . . . .	4.20
Sulphate of Potassa,	. . . . .	2.80
Sulphate of Lime,	. . . . .	2.54
Chloride of Sodium,	. . . . .	4.77
Carbonate of Lime, Magnesia, Iron and Silica,	. . . . .	.89
Bromine, a trace.	. . . . .
Water,	. . . . .	21.61

As it was interesting to make a fuller examination of the Crab Orchard salt in this market, and especially to examine it for the rarer elements, I have made an analysis of a sample, obtained from Messrs. Bullock and Crenshaw, in the laboratory of Dr. A. Genth, of Philadelphia, to whom I feel under many obligations for valuable aid and suggestions. I am also indebted to Dr. Robert Bridges, who kindly examined the separated alkalies with a spectroscope. The following are the methods which were employed:—

One gramme of the salt was dried, for several days, over sulphuric acid, losing 6.030 per cent. of moisture; on exposure to a temperature of 120° C., it lost an additional quantity of water, viz., 25.57 per cent.; ignition, at a dull red heat, produced a loss of 12.95 per cent of water and a small quantity of organic matter, the total loss by drying and ignition being 44.55 per cent. One gramme lost, on ignition at a dull red heat, 44.76 per cent. One gramme was dissolved in water, acidulated with chlorhydric acid; the insoluble residue being filtered off, it was precipitated with chloride of barium, for sulphuric acid; the sulphate of barium, washed and ignited, weighed 1.0304 grammes, equal to 35.379 per cent. of sulphuric acid. One gramme, treated in a similar way, gave 35.578 p. c. of sulphuric acid. Ten grammes were dissolved in water slightly acidulated by nitric acid; the insoluble portion being filtered off, the solution was treated with nitrate of silver for chlorine, the washed chloride of silver was reduced to metallic silver, by boiling with soda and a small quantity of glucose; this, being washed, dried and ignited, was then treated with a few drops of acetic acid, and again washed, to remove the last traces of soda. The metallic silver weighed 0.0885 gramme, equal to 0.291 per cent. of chlorine. Two grammes were dissolved in hot water, the insoluble residue, being washed, dried, ignited and weighed, gave 0.380 per cent. To the filtrate from the insoluble matter, chloride of ammonium was added, then ammonia and oxalate of ammonia, by which the lime and sesquioxide of iron were precipitated, which, being washed and ignited, were moistened with carbonate of ammonia, reheated, to expel the latter, and weighed, the weight of the mixture being .0216 gramme. This was treated with dilute nitric acid, which dissolved the carbonate of lime, and left the sesquioxide of iron, which, after ignition, weighed .0028 gramme or .14 per cent., giving .0188 gramme carbonate of lime, or .526 per cent. of lime. The filtrate from the lime and iron precipitate was precipitated with

phosphate of ammonia, from an ammoniacal solution; the phosphate of ammonia and magnesia thrown down was filtered off, washed with dilute ammonia water, dried and ignited; the pyrophosphate of magnesia, thus obtained, weighed $\cdot 8354$ gramme, equal to $15\cdot 052$ per cent. of magnesia. Two grammes were dissolved in water, and precipitated by acetate of lead, by which the sulphuric acid was removed, and the bases converted into acetates. The filtrate was evaporated and ignited, the mixture of magnesia, oxide of lead and carbonate of lime lixiviated with boiling water; the filtrate was evaporated with bichloride of platinum (after acidulation with chlorhydric acid). The chlorplatimates of potassium and sodium were separated by alcohol; the chlorplatinate of potassium was decomposed by sulphuric acid; the mixture with a little oxalate of ammonia was heated to redness, to reduce the platinum, which being washed and weighed, equaled $\cdot 0423$ gramme, equal to $1\cdot 012$ per cent. of potassa. Two hundred grammes were dissolved in water and filtered from the insoluble residue. This was examined, qualitatively, and found to contain, principally, carbonates of lime and magnesia, silicic acid, both soluble and insoluble forms, some sesquioxide of iron, alumina, oxide of manganese and fluoride of calcium. A slight excess of acetate of lead was added, to precipitate the sulphuric acid, and convert the bases into acetates; after filtration, these were evaporated, decomposed by heat, and lixiviated by boiling water. The filtrate was precipitated with sulphhydric acid, the sulphide of lead separated by filtration, and the liquid acidulated with chlorhydric acid, was evaporated till chloride of sodium began to separate; then chloride of platinum was added, to separate the chlorplatimates of potassium, rubidium and cæsium (should the latter be present). The mixture was then evaporated to dryness over a water-bath; the dry mass treated with dilute alcohol, to remove the chloride of sodium, then washed with stronger alcohol. I obtained about 8 grammes of chlorplatinate of potassium, which was boiled with 160 cubic centimetres of water, filtered, and the insoluble residue ignited, the mass treated as above described, and the resulting mixed sulphates were tested with the spectroscope, by which rubidium was very distinctly recognized. The filtrate from the chlorplatimates was boiled, to drive off the alcohol; the platinum precipitated by sulphhydric acid, and the chlorides evaporated to dryness, they were powdered, boiled with absolute alcohol, and filtered and washed with alcohol; this filtrate was evaporated to dryness, the dry

salt dissolved in very little water, phosphate of ammonia added, and the liquid evaporated to dryness. The dry salt was treated with ammonia water, allowed to stand over night, filtered off and the phosphate of lithia washed with ammonia water. It was carefully ignited and weighed, giving .0420 gramme of phosphate of lithia, equal to .008 per cent. of lithia. For an easier examination with the spectroscopic, the phosphate of lithia was dissolved in a few drops of nitric acid, (diluted,) and evaporated to dryness with a small excess of mercuric oxide, the dry mass was moistened with water, and again evaporated to dryness; being again dissolved, the phosphate of mercury was filtered off, the filtrate freed from mercury by sulphhydric acid, and the nitrate of lithia evaporated to dryness; and was proved by the spectroscopic to be perfectly pure lithia. One gramme, after ignition, was moistened with a few drops of dilute sulphuric acid; the excess driven off by heating to redness. After deducting .0052 gramme for insoluble matter and ferric oxide, the sulphates of magnesia, lime, soda and potassa and lithia weighed .5494 gramme. The magnesia was determined in this mixture, and found to be 14.800 per cent. The mean of the two magnesia determinations is, therefore, 14.926 per cent., calculating the values found for magnesia, lime, potassa and lithia, as sulphates, it gives .47955 gramme, leaving for sulphate of soda .6985 gramme, equal to 3.050 per cent of soda.

From these results, the analysis of Crab Orchard salt would be as follows:—

Water, on drying over sulphuric acid,	6.030	}	44.550
“ expelled at 120° C.,	25.570		
“ and organic matter on ignition,	12.950		
Insoluble matter, (Fe ₂ O ₃ , Mn ₂ O ₃ , Al ₂ O ₃ , Mg, Ca, SiO ₃ , C, CaFl ₂)	0.380		
Sesquioxide of iron,	0.140		
Magnesia,	15.052		
Lime,	0.526		
Lithia,	0.008		
Soda,	3.050		
Potassa,	1.012		
Rubidia, a trace.			
Chlorine,	0.291		
Sulphuric acid,	35.379		
			100.388
Less equivalent of oxygen for chlorine,	0.066		
			100.322

From this analysis, it appears that the constitution of the Crab Orchard salt is the following;—

			SO ₃
Sulphate of Magnesia,	44.778	Containing .	29.852
Sulphate of Lime,	1.277	" .	0.751
Sulphate of Potassa,	1.871	" .	0.859
Sulphate of Soda,	6.483	" .	3.652
Chloride of Lithium,	0.049		
Chloride of Sodium,	0.412		
Water,	44.655		
Insoluble Matter and Ferric Oxide,	0.520		

The salt, dried at 120° C., contains the principal constituents in the following quantities:—

Sulphate of Magnesia,	65.463
" " Potassa,	2.735
" " Soda,	9.480
Chloride of Sodium,	0.602
" " Lithium,	0.072
Water of Crystallization,	18.933

Crab Orchard salt is a brownish-white granular powder, without smell, of a saline and, at first, rather pleasant taste, with an after bitter taste. The cathartic effect of Crab Orchard salt is similar to that of Epsom salt, except, probably, milder in its action. It is also claimed, by its advocates, to have a specific action on the liver, and good tonic properties. These, together with the fact that smaller doses are required, give it, in the opinion of most of those who have used it, a decided advantage over the Epsom salt.

The dose is from half an ounce to an ounce, dissolved in water; it acts with greater certainty and more advantageously when given in drachm doses, at short intervals, till half an ounce is taken.

ON THE COMPARATIVE DIGESTIVE POWER OF HAWLEY'S AND SACCHARATED PEPSINS.

By E. SCHEFFER.

In the March number of the American Journal of Pharmacy Dr. J. S. Hawley complains of my comparative tests of different commercial pepsins, and seems to accuse me of impeaching his veracity and by my statements doing him pecuniary harm. I am not acquainted with Dr. Hawley, and my experiments were not intended to reflect upon any

of the gentlemen whose preparations I tested, my sole aim being to ascertain their medical virtue.

While Dr. Hawley seemed not to be disposed to test the saccharated pepsin, I, on the contrary, was anxious to repeat my tests in reference to his preparation, feeling conscientiously bound to do justice to him, in case I had erred in my first experiment.

Some time ago Mr. Jacob Dunton, of Philadelphia, sent me a sample of Hawley's and Boudault's Pepsins, requesting me to test them with mine, at the same time assuring me that he had them from a reliable source. I was astonished about the external appearance of Hawley's pepsin, as it was entirely different from the one I had tested before and bought from a wholesale house here. The sample was a quite white powder, while the one I had tested before was of a yellowish color.

The tests were all made in my usual way, by acidulating one fluid-ounce of water with ten drops of hydrochloric acid and adding a certain quantity of pepsin, as also of coagulated albumen. Eight grains saccharated pepsin, 100 grs. albumen; 10 grs. Hawley's pepsin, 90 grs. albumen; 10 grs. Boudault's, 90 grs. albumen.

After three and one-half hours' digestion at 105° , the saccharated pepsin had dissolved the albumen entirely, and I added 20 grains albumen more, and continued digestion until six hours had elapsed. By this time the 8 grains saccharated pepsin had nearly dissolved 120 grains albumen, only a small quantity left remaining. In Hawley's pepsin about double the quantity of albumen was undissolved as in the saccharated pepsin, and in Boudault's about four times the quantity.

At the same time with the foregoing experiments, I had tested another article of Hawley's pepsin, which I had procured from a firm in the city, of whom I had not previously bought. In appearance it was exactly the same as that tested before and mentioned in my last paper, and the result proved also that it was the same article, as 10 grains did not fully dissolve 15 grains of albumen in six hours; and 30 grains left of 60 grains of albumen a large quantity undissolved.

Upon communicating these results to Mr. Dunton, he related to me, in answer, an experiment of his, by which 10 grains of Boudault's and 8 grains saccharated pepsin had each dissolved 90 grains of coagulated albumen at 120° in six hours, while Hawley's (10 grains to 90 grains albumen) had not, and, to mention Mr. Dunton's own words,

“if I had stopped the process then, I would have considered Hawley’s worthless, but I concluded to push the process further, and to my surprise, at the end of twelve hours, it had dissolved the albumen.”

This discrepance in our tests made me still more desirous to go on with them, and for that purpose I went to the trouble to get Hawley’s pepsin from a third firm. Here I was fortunate to get an article different from those I had bought here before, as it was the same in appearance as the sample sent by Mr. Dunton; but at the same time I observed that it was put up in a larger bottle, and that the label had “Entered by Act of Congress” on it, in fact, that it was another preparation than I had come across before.

The following tests were executed in the manner often described: To each 10 grains of Hawley’s pepsin were added 40, 50, 60, 70, 80 and 90 grains of coagulated albumen, while 120 grains of albumen were put to 10 grains saccharated pepsin. In 40, 60 and 80 of Hawley’s the starch was separated from the liquid before the albumen was put in.

After three and a half to four hours’ digestion, the 120 grains albumen in the saccharated pepsin were entirely dissolved, so that 30 grains more were added and the process continued. 40 and 50 albumen in Hawley’s were dissolved in four hours, except a few small particles. After six hours’ digestion of 90 grains albumen in Hawley’s a considerable quantity was undissolved; of 80 somewhat less; while in 70 and 60 still small particles of albumen were seen. Of the 30 grains of albumen which were added to the saccharated pepsin after the 120 grains had been dissolved, not more was left undissolved than in 70 Hawley’s.

To comment upon these results I leave to impartial readers, and hope and wish that some of my colleagues will not shun the little trouble and repeat these simple tests to their own satisfaction. But it is certain that Hawley’s pepsin, as we had it here in market heretofore, is a different article from the one he prepares now, unless all Hawley’s pepsin we had used here before had been spoiled by age, in which event I would friendly advise Dr. Hawley to leave the acid out of his preparation.

My opinion from the first was, that Boudault had made a mistake in adding lactic acid to his preparation, and then by mixing it with starch. Such a mixture, if not perfectly dry, will and must spoil,

particularly when the bottle into which it was filled was in the least damp.

I do not want to be too sanguine about my preparation, as it has yet to stand the heat of summer; but I feel confident, by the way it is prepared, that summer heat will not influence it.

Before concluding I would like to remark that, from the first start, saccharated pepsin could have been made stronger, but, as I remarked in a former article, I wanted to bring it in conformity with the liquid pepsin, which during the last year our best physicians here have found a valuable medicine, so that one grain corresponded to a teaspoonful of the liquid. My standard is, that 10 grains saccharated pepsin in one fluidounce of water acidulated with 10 drops hydrochloric acid must dissolve 120 grains of coagulated albumen in four hours at 105°. It might be stronger, but I never allow it to be weaker, as every batch made is tested before being filled into bottles.

LOUISVILLE, KY., *April*, 1871.

LARGE DOSES OF CHLORAL HYDRATE.

Editor American Journal of Pharmacy:

DEAR SIR,—As the article of chloral hydrate is a new one, and anything throwing light upon its action being of interest to the profession, I desire to inform you of a case which, for the large amount taken without fatal results, exceeds any I have heard of. The party was an old opium-eater, who wished to quit the habit, and resorted to the hydrate to relieve the nervousness which followed the abstention. In five consecutive days he took 5 ozs. avd. without any bad effects. This is a strong contradiction to the recent opinion of Dr. Richardson, of England, who stated 180 grains to be a fatal dose, and that it was not prudent to give more than 120 grains in 24 hours, as the system could not decompose and eliminate more than from 5 to 7 grains per hour; or, does the habit of opium-eating destroy the susceptibility of the system to the effects of the chloral? I have seen no opinion on this subject, and would be pleased to hear of any.

Very respectfully,

B. LEMLY.

Jackson, Miss., April 10, 1871.

[We know of several cases of delirium tremens in which large doses of chloral hydrate (40 to 60 grs., repeated at short intervals) were

given with good effect. The largest quantity taken in a short time, that came under our notice, was six drachms in the course of a few (10 or 12) hours, but we do not know the nature of the disease nor the habits of the patient.—EDITOR.]

ON BEEF EXTRACT IN COMBINATION.

BY PROF. EDWARD PARRISH.

The greatly increased reliance by practitioners of medicine on the use of proper nutriment, not only as an aid to convalescence, but also to sustain the forces of life in the incipient stages, and, indeed, throughout the course of some very prevalent diseases, has called for a variety of beef extracts for the ready preparation of essence of beef and beef tea. The large sale of these attests the value placed on them, not only by physicians but by the public at large, and yet the idea of making articles of diet from something bought at the drug store, and having some of the characters of a medicine, is so repulsive to the keen sensibilities of many invalids, that often resort is had to the tedious extemporaneous methods of extracting the juice directly from fresh beef.

Moreover, it is often observed that, however nicely made, essence of beef and beef tea soon lose their relish when given constantly, under medical advice, or as a part of the treatment—a distaste which is sometimes due to the disease, but perhaps oftener to the fact that variety constitutes one of the chief attractions in matters dietetic.

In giving medicines, the importance of consulting the taste of the patient is less recognized; they are taken as a disagreeable necessity, and are not expected to possess the attractions which usually pertain to articles of diet.

These considerations seem to favor the idea of combining beef extract into pharmaceutical preparations, and thus giving it at stated intervals, *volens volens*.

The composition of such preparations being unknown to the patient, and the taste being disguised by admixture with suitable adjuvants, that feeling of disgust created by the idea of animal food in an undefined state, intermediate between medicine and diet, is avoided.

Of the several proprietary beef compounds recently introduced I have little knowledge, and have no doubt that they are useful. The object of this paper is not to supersede these, but to point out a method

of varying the composition of nutritive medicinal compounds, and to put it within the reach of all to meet the requirements of the medical practitioner, by furnishing any of these extemporaneously, as required.

Beef stock, as sold in tin cans, soldered, has been cheap since the war, and by solution in glycerin, diluted with water, may be brought to a tolerably permanent fluid, miscible with pharmaceutical preparations. The proportion may be six parts of beef stock to three or four of water, and one of glycerin. In time this becomes gelatinous, probably by the glycerin combining with gelatine, always present in the stock.

Experiments tried by exposing this fluid to a temperature and other circumstances favorable to putrefaction, indicate that in midsummer it would be necessary to keep it in a cool place, yet probably no further difficulty would be experienced with this than with many other preparations which during the intense heat of our summers require special precautions to prevent decomposition.

In the absence of beef stock resort may be had to either of the solid extracts of beef. I have dissolved Tourtellot's extract in eight parts of water, and added half a part of glycerin, but the solution, like the foregoing, is very inelegant. A good addition to either of these is caramel, which improves the color and gives a flavor of bitterness.

Gelatine is the ingredient which interferes with the eligible appearance and physical properties of these solutions, and hence to remove this without materially impairing their nutritive qualities is a desideratum. Solutions of tannin added in small portions, after largely diluting with water, causes a white flocculent to separate, which may be removed on a filter or Canton flannel strainer, and then, on evaporation to about the consistence of syrup, we have what may be termed a clarified solution of beef extract, preserved by glycerin. The tannin should be added with care, not to have an excess, and the filtration should be resorted to before the solution is inspissated, and yet after heat has been applied.*

The beef basis being at hand, it is easy to make suitable extempo-

* Liebig's beef extract is free from the objection arising from the presence of gelatine, and, as it is desirable to dispense with the tannin treatment, and to be able to prepare an eligible fluid by an easy and quick process, resort may be had to this elegant though costly product.

aneous mixtures with iron, quinine, the phosphates, and other tonics, dissolved either in very dilute alcoholic, or in saccharine, menstrua. Some judgment is required in the selection of these. As a rule, sweet syrups are best adapted to children; molasses is used in one of the popular proprietary nutritive tonics; but, on the other hand, great care is required not to cloy the stomach of an adult with sweets constantly administered.

Fluid extract of liquorice is one of the best excipients for disguising the meat flavor; that made from the root by the use of diluted alcohol gives a strong liquorice flavor and taste without much body. Diluted phosphoric acid, or the compound syrup of phosphates, is a good addition. Strong alcoholic liquids would be incompatible with it, but wines mix well, increasing fluidity and producing but slight precipitation. Wine of iron or bitter wine of iron may be advantageously added in the proportion of 1 part of the wine to 3 of the *Extractum carnis fluidum*.

FERRATED ELIXIR OF CINCHONA.

BY THE EDITOR.

A correspondent requests us to publish a good formula for this elixir. The first one published is that of Mr. James T. Shinn.* Another one, differing somewhat from the former, was communicated to this journal by Mr. Wm. C. Bakes.† At our request, Mr. Wm. McIntyre, of this city, has furnished us with the following formula for elixir of calisaya with pyrophosphate of iron, in which calisaya bark is employed:

Take of Calisaya,	.	.	.	.	3iv.
Sweet Orange Peel, recently dried,	.	.	.	.	3iii.
Coriander,	.	.	.	.	3vi.
Ceylon Cinnamon,	.	.	.	.	3iv.
Cardamom,	.	.	.	.
Anise, aa,	.	.	.	.	3ij.

Prepare these for percolation, and displace with a mixture of one quart stronger alcohol and three quarts of water.

To this tincture add

Oil of Orange (fresh),	.	.	.	.	40 m.
“ Lemon, “	.	.	.	.	16 m.
“ Almonds, “ (essential)	.	.	.	.	4 m., dissolved
in Alcohol, four fl. drs.					

* Am. Jour. Ph. 1862, p. 204. . † Ibid. 1863, 228.

Agitate this mixture with moist freshly precipitated hydrated sesquioxide of iron (well washed), prepared from an aqueous solution of the sesquichloride, for three or four days, or until a portion filtered off shows no reaction with the tincture of chloride of iron. Filter, and dissolve in it, without heat, two and a half pounds (av.) sugar. Add 1024 grs. pyrophosphate of iron, previously dissolved in a small portion of water, and make up the measure of one gallon, if necessary, by the addition of water. If a more reddish color is wanted, use a few grains of soluble citrate of iron.

The elixir thus prepared will keep well in color, and has a resemblance to the article extensively advertised under the same name.

If the cinchona bark contains 3 per ct. of alkaloids, and supposing the bark to be entirely exhausted, one gallon of elixir prepared according to the above formula would contain about 60 grains of alkaloids, or nearly half a grain to the fluidounce. Cinchona bark, however, cannot be completely exhausted by weak alcohol,* and after the treatment of the resulting tincture with hydrated sesquioxide of iron, the natural combination of the cinchona alkaloids is broken up, and nothing of medicinal value is retained by the liquid except the alkaloids.† The aromatics used in most of the formulas I believe add comparatively little to the medicinal virtues of this preparation, which aims, ostensibly, to unite the tonic properties of cinchona and iron. These considerations induced me to take advantage of the excellent combination of aromatics with calisaya bark, which was suggested by Dr. Squibb,‡ and has met with great favor by the medical corps of the U. S. Army. Accordingly, I have dispensed for the last five years a ferrated elixir of calisaya made by the following formula, and manipulated as follows:

1. Triturate magnes. carbon. \mathfrak{z} ss. first with the following volatile oils: Ol. aurantii *m* xx, ol. anisi *m* xv, ol. coriandri and cinnam. *aa* *m* 10, ol. carvi *m* v; then, with a mixture of 2 oz. alcohol and 14 oz. water, throw upon a filter and wash with water until the filtrate measures $3\frac{1}{2}$ pints.

2. Mix tinct. cardam. (simpl.) $\mathfrak{f}\mathfrak{z}$ ij, tinct. zingib. and calami *aa* $\mathfrak{f}\mathfrak{z}$ i, alcohol Oj, and add syr. simpl. Oj.

3. Dissolve unbleached quinia \mathfrak{z} iss, with acid. citr. \mathfrak{z} ijss, in alcohol. dilut. $\mathfrak{f}\mathfrak{z}$ iv.

* *Am. Jour. Ph.* 1861, 194. † *Ibid.* 1861, 304. ‡ *Ibid.* 1863, 230.

4. Dissolve ferri pyrophosph. 3xx, in aq. ferv. f3viij.

Add solution No. 3 to No. 2; then add No. 4, then No. 1, and finally add 1½ pint simple syrup and ½ pint alcohol. The whole measures 8½ pints, and may be colored by caramel to suit; each fluidounce contains about 9½ grs. pyrophosphate, 3 gr. alkaloids, and 1 gr. each of ginger, calamus and cardamom. It has a very pleasant, warm, aromatic, but, at the same time, a decidedly bitter, taste. The unbleached quinia may be prepared from the infusion of calisaya bark, made with acidulated water, by precipitating with an alkali. I have come into possession of a chinoidin containing a large percentage of quinia and quinidia, which has been used with advantage.

The two formulas published above represent the two views held by our pharmacists, namely, that cinchona bark, as such, and the isolated alkaloids alone should be combined with salts of iron.

GLEANINGS FROM THE GERMAN JOURNALS.

BY JOHN M. MAISCH.

Alkaloids in Boraginaceæ.—Prof. Buchheim proved with tannin, phosphomolybdic and phosphotungstic acids, the presence of traces of alkaloids in the infusions and tinctures of *Anchusa officinalis*, *Echium vulgare*, *Lycopsis arvensis*, *Symphytum officinale*, *Pulmonaria officinalis*, *Lithospermum arvense*, *Myosotis palustris* and *stricta*; the alkaloids could not be isolated by means of the above precipitants; by Stas' method they were obtained as amorphous, brownish, hygroscopic masses of alkaline reaction, and readily soluble in alcohol and water. The extracts of the two first named plants produced upon frogs faint symptoms of curare poisoning, all the others merely pain at the place of application.—*Zeitschr. d. Oesterr. Apoth. Ver.* 1871, 106, 107.

Chloride of Ethyliden is coming into use in Germany as an anæsthetic. Prof. Langenbeck compares it with chloroform, and finds that the chloride of ethyliden acts in smaller doses and more rapidly, usually in one to one and a half minutes; that its inhalation is more agreeable, does not irritate, and appears not to produce coughing; that its anæsthetic effects continue while the patient returns to consciousness; that alterations in the pulse and symptoms of suffocation are not observed. The remedy should be chemically pure, with a boiling point of 60° to 62° C.—*N. Jahrb. f. Pharm.*, 1870, Aug. from *Berl. klin. Wochenschr.*, 1870, No. 33.

Decomposition of Caffeidina.—Strecker reported in 1862, the decomposition, by caustic baryta, of caffeina into caffeidina. O. Schultzen decomposed the latter alkaloid completely by baryta and obtained ammonia, methylamina, formic acid and a crystalline body, $C_6H_7NO_4$. Francis Rosengarten has now proven that the latter is identical with sarkosina.—*Ann. d. Chem. und Pharm.*, 1871, Jan. 1—6.

Oil of Geranium.—Dr. Oscar Jacobsen has found in commercial Indian oil of Geranium 8 per cent. alcohol, and in another sample 20 per cent. fixed oil. Repeated fractional distillation of the volatile oil yielded a distillate boiling between 232° and 233° C., and of the composition $C_{20}H_{18}O_2$. This geraniol is a colorless liquid of very agreeable rose odor, soluble in all proportions in alcohol and ether, insoluble in water, optically inactive and remains liquid at -15° C. It yields, with recently fused chloride of calcium, a crystalline compound, and with fusing hydrate of potassa, valerianic acid; chromate of potassa and sulphuric acid oxidizes it to succinic, acetic and valerianic acids.—*Ibid.*, Febr., 232—239.

New Reagent for Arsenic.—A Bettendorff found that an aqueous solution of arsenious or arsenic acid, to which sufficient muriatic acid has been added until it fumes faintly, produces, with protochloride of tin, a brown turbidity, and the resulting precipitate is mainly metallic arsenic containing some tin. One millionth part of arsenic is thus readily detected. If the muriatic acid is too dilute, the reaction does not occur. Solutions of antimony are not affected. Muriatic acid containing arsenic may be purified by first precipitating with protochloride of tin, filtering and rectifying.—*Wittst. Viertelj. Schr.*, 1870, 430, from *Zeitschr. f. Chemie*, 1869, xii, 492.

Separation of Tin, Antimony and Arsenic.—F. W. Clarke (*Amer. Journ. Science*, 1870, Jan.) proposed to pass sulphuretted hydrogen into the solution of the metals, strongly acidulated with oxalic acid; the tin was stated to remain in solution. Albert B. Clark, Jr., has proven, in Wittstein's laboratory, the incorrectness of the proposed method for analytical purposes.—*Ibid.*, 549—554.

Muriatic Acid containing Bromine has been observed by Wittstein; its color was deep golden yellow; the stratum of air in the bottle had a brownish yellow color, and rapidly bleached litmus paper.—*Ibid.* 590.

Collodium Mercuriale, according to the *Giorn. d. Med. di Torino*, collodium 30 grm., terebinth. venet. 1.50, hydrarg. bichlor. corros. 0.30—0.50 grm.—*Pharm. Zeitung*, 1871, No. 5.

Glycerin in Pills.—The *Pharm. Zeitung*, No. 10, has been informed that pills containing glycerin cannot be silvered or gilt, since the lustre of both metals at once disappears, rendering the pills unsightly. Hager (*Ph. Cent. Halle*, 1871, 51) states, that this occurs only with recently prepared pills, and with older pills if prepared with an excessive quantity of glycerin. Two, and for quinia and iron three, drops of glycerin are sufficient for thirty pills.

Preparation of Chloral.—Springmühl proposes, in *Polytechn. Notizbl.*, to shorten the long process by the addition of 1 grm. iodine to 500 grm. absolute alcohol; after passing chlorine through the liquid for twelve hours, the free acid is neutralized by lime, the warm liquid filtered and distilled. Ethyliodide distils over at 72° C., and between 110° and 115° C. the chloral, which is treated in the usual way with sulphuric acid, redistillation, etc.—*Pharm. Zeit.*, 1871, No. 11.

Detection of Iodine and Bromine.—Hager describes a curious behavior of these halogens to solvents. Bisulphide of carbon agitated with bromine water, acquires a yellow color, leaving the water colorless; if now iodine is added, it will be dissolved by the carbon bisulphide, while the bromine again dissolves in the water. This displacing of the bromine from its solution in bisulphide of carbon occurs the more readily if the water contains a salt in solution, and the bromine may, by careful agitation, be dissolved in ether.

If solutions of bromide of potassium and ferric chloride are agitated with carbon bisulphide, no alteration takes place; but on the addition of an iodide, the bisulphide acquires the violet color characteristic of free iodine, and ether agitated with the aqueous liquid dissolves bromine and becomes yellow. Minute proportions of iodine (less than 1-100th) cannot be detected by these methods.—*Pharm. Centr. Halle*, 1871, 49, 50.

OIL OF PEPPERMINT AS A LOCAL ANÆSTHETIC.

Dr. A. Wright writes to the editor of the *Lancet*, (Nov. 19, 1870,) that, "a few years ago, I became acquainted with the fact of the natives, [Chinese,] when suffering with facial neuralgia, using oil of

peppermint, which they lightly apply to the seat of pain with a camel-hair pencil. Since then, in my own practice, I, in the same way, frequently employ oil of peppermint as a local anæsthetic, not only in neuralgia, but also in gout, with remarkably good results; indeed, the relief from pain I have found to be almost instantaneous."

It is worthy of note that some Chinese pharmacutists in San Francisco and New York have been selling a remedy for neuralgia which has gained some repute. It is a liquid, put up in very small vials, holding about half a drachm each, which are sold at an exorbitant price. The liquid has a strong smell of peppermint, and is, in all probability, the oil of that plant.—*The Medical News and Library*, Jan., 1871.

MORPHIOMETRIC ASSAY OF OPIUM.

By DR. THEODORE SCHLOSSER.

The author regards Mohr's process, with the improvements suggested by Jakobson and Hager, as the most advantageous. He operates as follows: 200 grains of opium are digested over night in a tared 8 oz. flask with 2 oz. distilled water, until a uniform mixture, free from lumps, is obtained. 50 grs. recently prepared burned lime are slaked with about 20 drops of distilled water, then mixed with 1 oz. of water and added to the opium infusion. Water is now added until the mixture weighs 1850 grains (1600 water, 200 opium, 50 lime). The flask is then kept in boiling water for one hour, and its hot contents poured on a small filter, which has *not* been previously moistened, but is kept covered with a glass plate. Neither flask nor filter are rinsed with water. The filtrate is then weighed and 3 per cent. deducted therefrom; the remaining figure represents, according to the author's investigations, the weight of pure water contained in the filtrate. If the filtrate weighs 1100 grains, it contains 1067 (1100—33) grs. water, and represents 1600:1067::200:133 grs. opium. The filtrate is heated in a water-bath, 70 grs. granulated chloride of ammonium are dissolved in it by careful agitation, the whole again heated in a water-bath, and, after cooling, 40 grs. ether are mixed in by agitation, and the whole set aside for an hour. Should the ether not have completely prevented the adhesion of the morphia to the glass, warm water is poured upon the outside of the flask, when the alkaloid can be readily detached, and is collected upon a small filter, washed with an ounce of water and dried. Narcotina is removed by

washing it three times with 40 grs. of chloroform, after which the filter is again dried. The weight of the morphia represents the amount obtained from 133 grs. of crude opium. If in the meantime another portion of opium, obtained from different parts of the cake, has been thoroughly dried, it is easy to calculate the morphia contained in 100 grs. dry opium.

The assay is finished in 24 hours, and the morphia is obtained in a very pure condition, little colored and in a crystalline form.—*Zeitschr. d. Oester. Apoth. Vereins*, 1871, 10—12.

A CASE OF POISONING WITH GELSEMIUM SEMPERVIRENS.

BY JOSEPH G. PINKHAM, M. D., LYNN.

On the night of December 5th, 1869, I was called in great haste to see Mrs. F., a former patient of mine, who was said to be dying. In the course of a few minutes I arrived at her bedside, and found her in the following alarming condition: Totally unconscious; breathing stertorous, and very imperfect; countenance of livid paleness; lower jaw drooping, leaving the mouth wide open; eyelids partially closed, and motionless; pupils moderately dilated; pulse 100 per minute, regular, but weak. On making hasty inquiries, I ascertained that she had been taking some medicine from a quack herbalist, who recommended it, in the choice English of that refined sect, as being able to “knock pain higher than a kite.” Being satisfied that the case was one of poisoning with some narcotic, I attempted to administer an emetic of sulphate of zinc; but, owing to the great difficulty in swallowing, I did not succeed in getting enough down to produce emesis. Friction and stimulants were then resorted to, and in about one hour and a half consciousness began to return. Treatment was continued, but recovery was not complete for several days, the principal complaint being of great prostration and muscular weakness, particularly of the elevators of the lower jaw, and eyelids, and the muscles of the arms. After the return of consciousness, intelligible speech was at first only possible when the jaws were supported. The tongue also was stiff, and the voice thick and guttural. The patient stated that, before she became unconscious, objects appeared double, and then she grew by degrees completely blind. She thought (and naturally enough) that she was dying. Subsequently, I saw the “doctor,” and learned from him that he had given gelsemium semper-

virens. He said he had prepared forty drops of the fluid extract in a bottle, and that, contrary to his directions, the patient had taken it all in the course of a few hours. I place no reliance upon his statement as to the amount, for he was most thoroughly frightened by the occurrence, but I have no doubt, from the symptoms, that gelsemium was the drug administered. The patient asserted positively that he gave her no specific directions as to dose or intervals, but told her to take it when she had pain, and if, on holding up her finger and looking at it, it did not appear double, she was all right, and could take more.

I satisfied myself, notwithstanding the denial of both parties concerned, that he had procured an abortion upon the woman, and gave the medicine as an anodyne after the expulsion of the ovum. It seemed at first as though the case would inevitably prove fatal; nor do I see now how recovery could have taken place without remedial interference.

I should not have been surprised, at any time within an hour after my arrival, to see the jerking respiration cease, and life become extinct.

The effect of the poison, it will be noticed, was to produce a general feeling of numbness and oppression, followed by double vision, loss of sight, paralysis of the muscles of voluntary motion, with complete insensibility to all external impressions. The paralysis of those muscles, whose function it is to elevate, was more persistent than that of any others. It is easy to explain the bad respiration by the condition of muscular paralysis which existed. There did not seem to be any direct sedative action of the poison upon the heart. In regard to this point, I am inclined to agree with Dr. Bartholow in the opinion that, when the cardiac movements are depressed, it is the result of insufficient respiration.*

I gave stimulants, (brandy, ammon. carb., &c.,) on account of the alarming prostration, and because I did not know what else to do. Should another patient, similarly affected, come under my care, I should pursue the same course, with the addition, if it were possible at the time, of the use of galvanism, an agent found so beneficial, in his own case, by Dr. J. T. Main, of Unity, Maine.†

* Practitioner, (London,) Oct., 1870, p. 208.

† Boston Medical and Surgical Journal, April 15, 1869.

The notes of this case were taken chiefly at the time of attendance. Since then, I have seen reports of several other instances of poisoning with the same drug, some of them fatal.* They all agree essentially with mine in the character of the symptoms presented. It is altogether probable that my patient had taken much more than forty drops of the fluid extract.—*Boston Med. and Surg. Jour.*, Feb., 1871.

TRANSPIRATION OF AQUEOUS VAPOR BY THE LEAVES OF PLANTS.

Professor McNab, of Cirencester College, England, has recently published an important series of experiments on this subject. The plant experimented on was in all cases the common cherry-laurel, (*Prunus laurocerasus*), and the fluid to determine the rapidity of ascent, lithium citrate, a very small quantity of which can be detected by means of the spectroscope. Dr. McNab divided the results under the following heads:—1. Quantity of water in the leaves. The mean of several experiments gave 63·4 per cent. 2. Quantity of water which can be removed by calcium chloride, or sulphuric acid, *in vacuo*. This was found to be from 5·08 to 6·09 per cent. 3. Amount of transpirable fluid in the stem and leaves, 7·58 per cent. The remainder, from 56 to 57 per cent., was therefore determined to be fluid in relation to the cell-sap of the plants. 4. Rapidity of transpiration in sunlight, diffused light, and darkness. The results given are:—In sunlight, 3·03 per cent in an hour; in diffused daylight, 0·59 per cent.; in darkness, 0·45 per cent. 5. Amount of fluid transpired in a saturated, and in a dry atmosphere in the sun, and in diffused daylight. In sunshine, the experiments gave 25·96 per cent. in an hour, in a saturated atmosphere; 20·52 per cent. in a dry atmosphere; in the shade, the results were reversed, nothing whatever in a saturated, 1·69 per cent. in a dry atmosphere. These results strikingly confirm the earlier experiments of Dehérain, that evaporation from leaves is due to light, and not to heat, and that it proceeds equally in a perfectly saturated atmosphere. 6. Quantity of water taken up by leaves when immersed in it. The mean of several experiments gave 4·37 per cent. in one and one-half hours. 7. Quantity of aqueous vapor absorbed by leaves in a secluded atmosphere. This was found

* American Journal of Pharmacy, Jan., 1870. American Journal of the Medical Sciences, Jan., 1867.

to be *nil*, again confirming the statement of M. M. Prillieux and Duchartre that plants absorb no moisture whatever in the state of vapor through their leaves. 8. Differences in the amount of fluid transpired by the upper and under side of leaves in the sun and in diffused daylight. From the upper surface in sun, 1.74 per cent. in an hour, from the under surface, 12.33 per cent.; from the upper surface, in diffused light, 2.82 per cent. in forty-eight hours, from the under surface, 16.08 per cent.; from both sides, when coated with collodion, 0.86 per cent. in sun, 2.56 per cent. in diffused light. 9. Relation of fluid taken up, to that transpired and that retained by the plant. Increase of weight of branch, in saturated atmosphere, diffused daylight, in forty-eight hours, 7.34 per cent., in ordinary atmosphere, 7.14 per cent., in darkness, 3.01 per cent. 10. Rapidity of ascent of fluids. From 4 7-12 inches in ten minutes to 8 7-12 inches in ten minutes. 11. Influences of gases on transpiration. Transpiration of fluid in oxygen in one hour in sun, 12.77 per cent., in atmospheric air, 7.5 per cent., in carbonic acid, 4.01 per cent., in nitrogen, 1.97 per cent. The bad weather and the lateness of the season terminated the experiments before several points of interest could be fully determined. A. W. B.

From the American Naturalist, March, 1871.

BISMUTH.

By A. R. ROESSLER.

One of the more noteworthy results of the investigations instituted under the authority of the U. S. General Land Office into the mineral products of the several States, is the discovery of the somewhat rare metal Bismuth. The specimens in the Geological Museum were brought from Archer County, Texas, through which region it is gratifying to learn that a railroad line is now being surveyed in connection with the northern counties of the State, most of which have been so much infested with hostile tribes of Indians that the wonderfully rich deposits of copper and other metals are unapproachable and worthless. The bismuth ore is associated to some extent with copper glance, but in separate veins. Its gangue is quartz, through which it is disseminated in small metallic grains, and it only requires about 500° Fahrenheit to fuse them, and the melted metal is collected as it runs from the furnace. It is of somewhat silvery brightness, with a

roseate tinge. It is used in small quantity as a component of britannia ware. One of its chemical preparations is extensively employed in medicine, and has also been applied as a cosmetic under the name of "*lily white*," in consequence of the delicate white tint of the powder. Its effect, after much use, is to leave the skin of a dirty yellow hue, and of leathery texture. The subnitrate of bismuth is one of the most extensively used remedies in that disease so common here, "*dyspepsia*." In the thermo-electric batteries, enabling the electroplaters to dispense with the troublesome liquid-acid-batteries, bismuth is the principal ingredient. The Texas ores are associated with the other valuable metals cobalt and nickel, which, from the specimens in hand, would seem to be in preponderance.—*Journal of Applied Chemistry, February, 1871.*

Varieties.

Test for the purity of Olive Oil.—Dr. Ramon Codina Langlies, pharmacist in Barcelona, uses the following test for proving the purity of olive oil: 3 parts nitric acid, spec. gr. 1.33, are diluted with 1 part of water. 1 grm. of this acid is added to 3 grm. of the oil; on the application of heat by means of a water-bath the color of pure olive oil becomes somewhat lighter, but acquires a red tint in the presence of benne oil; 5 per cent. of the latter are readily detected. The operation requires only 15 to 20 minutes, and the coloration remains unchanged for several days.—*Journ. de Pharm.*

Dry Narcotic Extracts.—Jassoy, in Frankfort-on-the-Main, uses purified dextrin for this purpose. The purification of commercial dextrin is effected by dissolving it in 6 or 8 times its quantity of water. After 24 hours the solution is filtered from the sediment, and the clear filtrate evaporated to a syrupy consistence, when the pure dextrin is precipitated by an excess of alcohol, and set aside over night; the liquid is now decanted and the precipitate exsiccated and rubbed to powder. The yield is 40 to 60 per cent.

The narcotic extract is now heated, mixed with an equal weight of purified dextrin, and the mixture then completely exsiccated either in the drying closet or over chloride of calcium; sufficient dextrine is then added to make the weight of the dry residue double that of the extract, when the whole is rubbed into a uniform powder. The use of dextrin for this purpose was recommended as far back as 1865, by Behrens of Lausanne.

Such powdered dry extracts keep well in corked vials, are readily and rapidly soluble in water, and the aqueous solution is miscible with a moderate quantity of alcoholic liquids.—*Archiv d. Pharm.*

It is obvious that, in dispensing these dry extracts, double the weight of the prescribed quantity must be used.

Cement.—Shellac heated with ten times its quantity of solution of ammonia, forms, after some time, a slimy mixture, and dissolves in 3 or 4 weeks; this solution is recommended for fastening caoutchouc plates upon wood or metal. *Polytechn. Centralbl.*

Sugar in Urine.—Prof. Almen, of Stockholm, observed that the urine of patients who had taken oil of turpentine, contains sugar, which disappears after the oil of turpentine had been discontinued for a day. After the use of turpentine (12 grm. daily) a mere trace of sugar was observed. No reaction for sugar was obtained after the use of copaiva and cubebs.—*Apoth. Zeitung.* 1871, No. 4.

*Erythrocentaurin** is, according to Méhu, contained also in the herb of *Erythraea chilensis*, Pers.—*Journ. de Pharm.*, June, 1870.

Alcohol in acetic ether is detected, according to Frederking, by agitating the ether with an equal volume of glycerin, which dissolves the alcohol only. For obtaining absolute acetic ether, the crude distillate containing water and alcohol may be treated with glycerin previous to rectification.—*Pharm. Zeitschr. f. Russl.*

Iodine is now obtained in considerable quantities from the nitrate of soda of Tarapaca, Peru, which contains iodic acid. The mother liquors are treated with sulphurous acid, the precipitated iodine collected upon a sand filter and dried upon tiles of gypsum. In this condition it still contains water and salts; it is brought to the market as crude and resublimed iodine. The annual production, it is estimated, will soon reach 30,000 lbs.—*Dingler's Polyt. Journ.*

Application of Permanganate of Potassa.—The solution of this salt is readily decomposed by organic matter generally and particularly by vegetable tissues. Some time ago Prof. Boettger found that this solution may be filtered through gun cotton without decomposition, and recently, Dec. 3d, 1870, he suggested the latter substance as suitable for applying the permanganate solution as an antiseptic in dressing wounds, ulcers, etc. This mode of application has proved eminently successful, the bad odor of suppurating wounds disappearing almost instantly.—*Polyt. Notizbl.*

The two chairs of chemistry in the Swiss Polytechnic Institute, which were made vacant by the deaths of Professors Bolley and Städeler, are filled again by the appointment of Prof. John Wislicenus, of the University of Zürich, as Professor of general chemistry and director of the analytical laboratory; and of Prof. Emil Kopp, of the University of Turin, as Professor of technical chemistry and chemical technology and director of the technical laboratory.

* See this Journal, page 207.

A law was published in Austria and is still in force, which prohibits apothecaries from the manufacture of artificial mineral waters, and forbids to name any artificial product after any spring in imitation of which it may have been made.

Compulsory Vaccination of all children has been introduced in Alsace, by order of the provisional government in February last.—*Pharm. Zeitung.*

Minutes of the Pharmaceutical Meetings.

April 18th, 1871. Prof. Procter presiding. Some verbal corrections were made in the minutes, which were noted by the Registrar.

Prof. Parrish read a paper on Beef Extracts in Combination, and exhibited specimens of several fluid preparations made with and without treatment for the separation of gelatine, all containing glycerin as an antiseptic ingredient. He also showed some bottles of *Fleisch Extract Syrup*, imported several years ago from Frankfort-on-the Main, the contents of which had become completely solidified.

In view of the suggestion to precipitate the gelatine by means of tannin from the beef extracts of commerce, Prof. Procter queried whether the animal alkalis might not also be precipitated by tannin.

Prof. Maisch said that the "Liebig Company's Extract of Meat," and some other kinds made by Liebig's formula, were free from gelatine, and would furnish fluid extracts without the necessity of resorting to the process of clarifying.

Prof. Parrish remarked that he had intended to prepare some of a similar preparation from Liebig's Extract, and would do so and embody the result in his paper. On motion, the paper was referred for publication.

Prof. Parrish exhibited specimens of several farinaceous materials prepared by the Nutrio Manufacturing Company for domestic use and for infants' food. These were all made from wheat which had been heated to nearly 300° F., by which it loses from 10 to nearly 20 per cent. of moisture, and the starch is partially converted into dextrine and sugar. The Company is working under patents which apply in part to the apparatus for the application and regulation of the temperature. One of the chief advantages to be obtained by the extension of this branch of manufacture will be the cheapening of infants' food, now so extensively imported.

A general discussion followed on the process for making Ferrated Elixir of Bark, and the practicability of separating the tannin by hydrated peroxide of iron, the experience of members differing in regard to this.

Mr. McIntyre stated that, if calisaya bark is treated with a very dilute alcoholic menstruum, and the tincture then mixed with the hydrated oxide, it would cease to blacken with soluble salts of iron. He stated that he used pyrophosphate of iron as the principal salt in the elixir, and overcame the green tint by a small addition of solution of citrate of iron. He had also diluted the official fluid extract of cinchona with good success, instead of starting with the bark itself. He had found the solution of chloride of iron convenient for precipi-

tating the hydrated oxide with ammonia, on account of the great facility of washing out the very soluble muriate of ammonia from the magma.

Prof. Maisch expressed his preference for the cinchona alkaloids in making this elixir, and stated his conviction that few, if any, of the principal manufacturers used the bark itself, or even the alkaloids, in sufficient proportion to impart much of the tonic property of cinchona; he stated the proportion of his elixir as follows, using a chinoidin, which contains much quinia and quinidia, 90 grains to Oviiss; $9\frac{1}{2}$ grains of pyrophosphate are contained in each fluid ounce.

A general discussion grew up as to the propriety of preparing elixirs to meet the popular demand, or to fill the prescriptions of physicians. Prof. Maisch's custom is to make all such as are required in the course of his business, and to decline prescriptions which call for special proprietary preparations. Prof. Procter prefers sending to the physician for the formula in all cases in which there is uncertainty as to the composition designed, and dispensing such as are well known. Prof. Parrish's practice is to originate a formula in any case in which there is none published, taking into account the proper doses and pharmaceutical requirements of the ingredients, but in no case selling one of his own where another is evidently intended to be prescribed.

Mr. Gailard exhibited a specimen of Whitman's Cacao Butter, of fine quality, used by him in making suppositories.

Prof. Maisch called attention to the fact that the fusing point of this oil is generally stated to be at about 90° F.,* while common experience shows that suppositories made with it, without admixture, will retain their shape reasonably well throughout our hot summers.

The preparation of suppositories being under discussion, the method of preparing them without fusion was adverted to.

Prof. Procter stated that he had practiced that method on their first introduction, but noticed a difference in the facility of manipulating them according to the temperature of the hands of different persons—while some could form a suppository without inconvenient fusion, others would have the mass become too soft to handle.

Prof. Procter exhibited the remains of the retort, the explosion of which killed our late fellow-alumnus Ferris Bringham, together with the curved piece of iron taken from his brain, measuring about $1\frac{1}{2}$ inches in length by about 1 inch in width by $\frac{1}{2}$ inch in thickness.

Prof. Maisch gave the result of his analysis of several samples of assafœtida taken by the Drug Inspector of this port from different cases and from different parts of the mass, with the following result:

	No. 1.	No. 2.	No. 11.	No. 18.	No. 20.
Oleoresin,	34.25	41.47	61.80	37.86	28.88
Alcoholic resin,	2.23	2.42	1.13	1.62	1.20
Total resin & vol. oil,	36.48	43.89	62.93	39.48	30.08
Impurities,	57.50	44.01	15.20	51.70	62.09
Gum moisture and loss,	6.02	12.10	21.87	8.82	7.83
	100.00	100.00	100.00	100.00	100.00

* *Wat's Dictionary of Chemistry* gives 30° C. (86° F.)

These were samples of amygdaloid assafœtida which a year ago was rejected by the purchaser as adulterated, he claiming that good assafœtida should be entirely free from sulphate of lime. The imparities in the above instance consist of gypsum and vegetable fragments, as always met with in the resinous matter agglutinating the tears.

CLEMONS PARRISH, *Registrar.*

Editorial Department.

SALUTATORY.—The newly elected editor of this Journal commences his editorial labors with the present number. In accepting these duties, he is cognizant of the responsibility assumed by him, both towards the Journal, which, under the able and fearless management of its retiring editor, has been carried into the foremost ranks of pharmaceutical periodicals, and also towards its numerous readers, who have a right to expect that it shall maintain the high position in which it has been placed through years of patient labor. To accomplish this we shall spare no pains, but shall use our best endeavors in advancing what we conceive to be the true interests of our profession, and in this light we desire our editorial acts to be viewed, trusting that the sense of duty towards the readers, the profession generally, and toward kindred professions, will always be evident, as it will be the governing motive of our labors. Through our connection with this Journal during the past years, as one of its contributors, we are not a stranger to its readers, and in our new relation to it as editor we feel that we have no special promises to make, but we trust that with the aid of those who have heretofore so liberally contributed to its pages, and also through communications from many of our younger friends, we may be enabled to make each and every number of the Journal full of interest and of lasting value to the profession.

CLASS IN BOTANY.—The botanical excursions of the students and graduates of the Philadelphia College of Pharmacy have been resumed, and will be continued, during the Spring and Summer, every Wednesday afternoon. Fairmount Park now encloses grounds which some years ago were frequently visited by botanists, and several other botanical localities will in a few years be taken up for the same purpose. The Park Commissioners, however, are disposed to extend all proper facilities for the prosecution of scientific research within the Park, and upon application the following permit was issued, the reception of which is hereby acknowledged:

Permission is hereby granted to Professor John M. Maisch for researches in Botanical Science upon the Park grounds. It is a condition of this Permit that no injury shall be done to the shrubbery and other ornaments of the Park, and that no greater quantity of specimens shall be taken than are fairly required for scientific purposes, and must be put into suitable receptacles for their preservation.

(Signed)

LOUIS M. CHASTEAU, *Capt. Guard.*

JNO. C. CRESSON, *Chief Engineer.*

THE FATE OF LEGISLATION FOR THE REGULATION OF THE PRACTICE OF PHARMACY during the last winter has not been such as the friends of the elevation of Pharmacy were justified in expecting. In all the States but one where bills were introduced the measures were defeated, partly in consequence of local patriotism, manifested by the endeavor to except certain blessed localities from the provisions of an act demanding proof of proficiency from the dealers in medicines and poisons; partly because some physicians succeeded in convincing wise legislators that by virtue of their diploma conferring the title of M. D., they were capable of doing anything and everything in the remotest degree related to physic and medicine and surgery; but partly, also, because it was extremely difficult to reconcile the wants of oftentimes very thinly populated districts of a large State with the necessities of populous cities. In a city of New Jersey, out of 45 regular physicians, 42 signed the petition in favor of the Pharmacy act. As members of an honorable profession, they showed their good will and lent their hearty support to the elevation of a kindred profession; *not one* of them signed a remonstrance, which received the signatures of a few druggists, all the eclectics and clairvoyant physicians in that city.

In Michigan, where the Pharmacy act was defeated, a bill passed the House to establish a chair of Homœopathy in the University. We admire the consistency of some of the members who voted for endowing a chair teaching how to cure disease with a small dose of nothing; they could hardly be expected to be in favor of allowing dead bodies being cut up with the view of studying anatomy. It is a *barbarous* practice, and utterly *unnecessary*; for anatomy can be studied from engravings, wax models, &c. For the sake of humanity, we hope that these wise legislators, when needing the aid of a surgeon, may be fortunate enough to secure the services of one who has had occasion to study anatomy from other sources than models and engravings, and to have their prescriptions compounded by apothecaries who have been educated to their duties.

A BILL FOR LICENSING DRUGGISTS has been passed by the Legislature of New York. As first passed, it had reference only to clerks, but before being signed by the Governor was recalled and altered so as to provide for the examination of the principals as well as clerks before a board appointed by the Mayor of New York city. The existence of pharmaceutical colleges in this country and in Europe is persistently ignored. We have not received a copy of the bill as finally passed, and may have a few remarks to offer in our next issue. For the present we shall content ourselves to state that the examining board is to be composed of two physicians, two pharmacutists, and two chemists, and to lay before our readers the following well-timed suggestions from the *Medical Gazette* of New York, some of which are applicable also to other localities outside of the commercial metropolis of this continent:

As His Honor the Mayor will doubtless be overwhelmed with applications for appointments, we venture to offer for his guidance a hint that the proprietors of flourishing establishments, wherein the dispensing of prescriptions is a sort of side issue from the main traffic in patent medicines, cosmetics and "fancy articles" generally, are by no means the most eligible pharmacutists in our midst. There are in New York several apothecaries who hold both phar-

maecentical and medical degrees, and from these the fittest choice could be made for all the positions on the board. Medicine and pharmacy are such entirely distinct pursuits in a large city, that it would be a very difficult task to find even two medical practitioners who know as much of practical pharmacy as does the least informed druggists' clerk, and without such knowledge the physicians of the board must be useless incumbrances.

THE RENEWAL OF PHYSICIANS' PRESCRIPTIONS.—A bill has been before the New York Legislature forbidding the renewal of prescriptions without the special order of the prescriber, but was not passed or likely to pass, according to our latest information. We are pleased to see that the subject will come up for discussion before the American Medical Association at its next annual meeting, which will be held in San Francisco in May. We trust that the matter will be thoroughly ventilated, not only upon theoretical grounds, but likewise in its practical bearings. We know several physicians of this city who have tested it practically, by having upon their prescription blanks a notice printed in plain English, that the apothecary is to retain the prescription, but not to renew it except by special order. As far as we know, these physicians have all discontinued the use of such blanks, having probably found the restrictions impracticable.

THE TITLE OF DOCTOR OF PHILOSOPHY, we are informed by the *Medical News and Library*, will hereafter be conferred by the University of Pennsylvania upon graduates in Medicine of the University (or of schools recognized by it), who shall also have attended two courses of the Auxiliary Faculty of Medicine, and passed a successful examination by this Faculty. Such a candidate for the honor must, in addition to his knowledge of all the usual branches of medicine, be acquainted with at least five branches of especially scientific learning, viz., Chemistry (including Physics and Botany), Comparative Anatomy, Zoology, Geology and Mineralogy.

On reading this announcement, our reflections were fixed mainly upon two points: 1st, that it be considered necessary, in order to become a philosopher, to previously become a physician; 2d, that a mere *acquaintance* with half a dozen sciences be deemed sufficient ground for conferring an academic degree. If we are not grossly mistaken, history teaches us that there have been and are now living many philosophers who know very little about medicine; and it is our conviction that an *acquaintance* with *all* the the branches of scientific learning ought to be the aim of good school education. We advocate the conferring of titles to the meritorious, but desire to see them restricted to those who are *proficient* in scientific learning. The field of scientific knowledge and research has become so vast that *very* few scientists of the present time will be found who could lay claim to having mastered it altogether. The result of our reflections is not materially influenced by the announcement that the University does not intend conferring this degree as a mere honorary one, but requires that the candidate shall pass an examination for it.

IS VACCINIIN IDENTICAL WITH ARBUTIN?—On page 297 of the last volume of this journal, Mr. E. Claassen describes a bitter principle which he obtained from

the leaves of *Vaccinium vitis idæa*, Lin. Our attention was again called to this paper on reading the inaugural essay of Mr. Jungmann, published in this number, page 202. A comparison of Claassen's process with the processes used by Streeker and Kawalier, for the preparation of arbutin, will show that they are almost identical. As far as it goes, the description of the properties of vacciniin agrees with arbutin; products of decomposition, experiments on the glucoside nature of vacciniin, &c., are not mentioned. As far back as 1859 Uloth obtained from the aqueous extracts of various ericaceæ, ericinon, which Zwenger, Hesse and Himmelmann subsequently proved to be identical with hydrokinone, which is a decomposition product of kinic acid and of arbutin. The fact that kinic acid has been prepared from one or two species of *vaccinium* is no proof that arbutin may not occur in the same plants, or in plants of the same or an allied genus. Hence, the probabilities are in favor of the supposition that vacciniin and arbutin are identical.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Causation, Course and Treatment of Reflex Insanity in Women. By Horatio R. Storer, M.D. Boston: Lee & Shepard, publishers. 1871. 236 pages.

This is a reprint of a report made by the author to the American Medical Association in 1865, and which he was authorized by the Association in 1867 to republish in book form. The subject is treated under the following headings: 1. Selection of special topic. 2. Points previously attained. 3. Work to be done. 4. The brain the seat of insanity, not always of its cause. 5. Explanations of distant causation. 6. Causation often pelvic in women. 7. Rationale of pelvic causation of insanity. 8. Indications of treatment. The last three chapters, occupying two-thirds of the pages of the book, are the most important of the special subject of this memoir, and evidence a great deal of labor and research.

Report of the Board of Health of the City and Port of Philadelphia, to the Mayor, for the year 1870. Printed by order of the Board. 1871. 8vo, 112 pages.

This report contains, besides lists of all the officers connected with the department, reports and statistical tables of the work done by and under the authority of the Board, vital statistics, &c.

We learn that Philadelphia is cleaned at a much less cost per mile than New York or Boston, but we have not comparative statistics of the cleanliness of the streets of the three cities. Among the reports of the physicians of the port, the lazaretto and the municipal hospital, we find several treating on relapsing and yellow fever, which diseases became epidemic in certain confined localities in the lower portions of the city, the yellow fever having been imported by the brig "Home" from Jamaica. A separately paged essay, covering 86 pages, by Dr. R. La Roche, is appended, and treats on the origin and mode of progression of yellow fever in Philadelphia. With a population, according to the last census, of 674,022, the mortality in the city during 1870

was 15,317, or one in 44 of the population, the births numbered 17,194, and 6,421 marriages were registered. The statistical tables exhibit a great amount of labor, and impart much valuable information to the statistician.

Die gerichtlich-chemische Ermittlung von Giften in Nahrungsmitteln, Luftgemischen, Speiseresten, Körpertheilen, etc. Von Dr. Georg Dragendorff, ord. Professor der Pharmacie an der Universität Dorpat. Mit Holzschnitten. St. Petersburg, 1868. 8vo. 426 pages.

The forensic chemical determination of poisons in vitals, gases, food, animal bodies, etc. With wood cuts.

We owe an explanation to the author for not having noticed his valuable work before, and regret exceedingly that it has been very much delayed on its way to our hands, having been received but a few weeks ago. Numerous investigations on the detection of poisons, and especially of the alkaloids, were made with commendable perseverance by the author and, under his guidance, by his pupils. In the work before us the author considers the more important methods recommended for the detection of the different poisons, the points wherein they are superior or deficient as compared with other processes, and particularly their reliability. He relates the symptoms produced by the poison, and endeavors to guide the chemical expert, based upon the results obtained, in meeting the legal questions in connection with accidental or intentional poisoning. The scope of the work is best shown by quoting the headings under which some of the poisons are treated, for which purpose we select an inorganic and an organic poison. Arsenic.—General remarks; resorption; symptoms of arsenical toxication; mummification of corpses; emesis in poisoning by arsenic; in which parts of the body must arsenic be searched for? which mistakes are possible? accidental occurrence of arsenic in exhumed corpses; disappearance of arsenic from the corpses of poisoned subjects; did the arsenic found cause death? remaining in rooms with arsenical colors; treatment of organic mixtures for arsenic; precipitation by sulphuretted hydrogen; reduction of arsenic acid; treatment of the precipitate; methods to detect arsenic; recognition of arsenical mirrors; properties of arsenic compounds; quantitative determination of arsenic.

The headings under Cantharides are: General remarks; action; resorption; not poisonous for all animals; separation of cantharidin from mixtures; properties; corpus delicti; quantitative determination; poisoning with the tincture and with powdered cantharides; mistakes possible; other epispastic substances; volatile principle of cantharides.

The language is clear and concise, adapted for those who are not mere tyros in chemistry, the illustrations are well executed, and most of the few typographical errors are readily detected. We desire to correct a misstatement which, though entirely unimportant for the work under consideration, we have repeatedly met with in European works. In a foot note on page 275 the author says that "the principle originally called hydrastin has been recognized as identical with berberina. The name hydrastin was subsequently used for a second alkaloid occurring in *hydrastis canadensis*." The facts are just the reverse: Hydrastia was discovered and recognized as an alkaloid in 1850 by A. B. Durand.

Subsequently the eclectics applied the same name to the precipitate occurring in the infusion and tincture of hydrastis by muriatic acid, and obstinately persist in this error to the present day, although Dr. F. Mahla, in 1862, proved this precipitate to be muriate of berberina, and notwithstanding the impropriety of the course pursued has been repeatedly pointed out to them.

Uebersicht der Cinchonon, von H. A. Weddell, Dr. med. Deutsch bearbeitet von Dr. F. A. Flückiger, Prof. an der Universität Bern. Schaffhausen und Berlin, 1871. Svo. 43 pages.

Review of the Cinchonas, by H. A. Weddell, M.D.

An elaboration in German of Weddell's *Notes sur les Quinquinas*, by Flückiger.

Twenty-two years ago Weddell opened the way for a truly scientific study of cinchona barks. His labors were well appreciated in Europe, and many others, prominent among whom was Howard, followed in his path, whose works are comparatively little known on this side of the Atlantic. The work in question is not merely a translation into German, but it is a valuable addition to the vast literature on the cinchonas, enriched by Flückiger's extensive knowledge of the subject and his critical sifting of facts.

Proceedings, Constitution and By-Laws of the Vermont Pharmaceutical Association, incorporated at the October session of the Vermont Legislature, 1870. Rutland: Tuttle & Co., printers. 1871.

With a commendable spirit, our pharmaceutical friends in Vermont formed a State association, and became a body politic by act of their Legislature. Constitution and by-laws are modelled after those of the American Pharmaceutical Association, and the code of ethics after that adopted by the Philadelphia College of Pharmacy. The discussions, to judge from the minutes, were valuable and interesting, and with such sentiments as were expressed at the several meetings, we bespeak for the new State association a hearty welcome in the councils of the National association. The following are the officers: Dr. C. L. Case, Brandon, President; Wm. H. Northrup, Castleton, and Julius S. Hickock, Vergennes, Vice-Presidents; Albert W. Higgins, Rutland, Secretary; Collins Blakeley, Montpelier, Treasurer.

Jahresbericht über die Fortschritte der Pharmacognosie, Pharmacie und Toxicologie. Von Med.-Rath Dr. Wiggers, Prof. in Göttingen, und Dr. A. Husemann, Prof. in Chur. Neue Folge. 4 Jahrgang, 1869. Göttingen, 1870. 8vo. Pp. 568.

Annual Report on the Progress of Pharmacognosy, Pharmacy and Toxicology.

The 4th volume of the new series—the first 25 volumes having appeared under the title of “Cannstatt's Jahresbericht”—sustains the high reputation acquired for this annual by the previous volumes. The matter is arranged in a systematic order, under the three headings mentioned in the title, chemistry being included under Pharmacy, which is divided into eight parts, of which “Pharmacy of the inorganic bodies,” “Pharmacy of organic bodies,” and “Pharmacy of mixed medicinal substance,” are the most voluminous. The different essays on the same subjects are not merely enumerated and extracted one after the

other, but the authors review the entire literature on each subject during the year, contrasting critically the statements of the different investigators where they are at variance. This feature makes the work particularly valuable to the reader. In no instance is the reference omitted to the journal or work, in which the statement originally appeared. The careful sifting of all facts from the literature of most of the civilized countries, and the copious references to investigations conducted in previous years, secure to each and every volume of the "*Jahresbericht*" an intrinsic and lasting value, which is approached, but not reached yet, by the annual reports on the Progress of Pharmacy published by the American Pharmaceutical Association. The American literature, pharmaceutical and medical, has been well studied and selected, and the efforts of American pharmacists to elevate their profession, by excluding incompetent persons, are approvingly criticized. Our opinion concurs with that of the authors, that the elevation of pharmacy to the proper position will render unimportant all legislation threatening fine and imprisonment for adulteration, though we do not share his sanguineness in regard to the salutary effects of the inspection of pharmaceutical establishments by State boards.

Ueber den Zustand der Chemie in Frankreich. Von Dr. Hermann Kolbe, Prof. der Chemie an der Universität Leipzig. Leipzig, 1870. J. A. Barth. 8vo. 14 pages.

On the State of Chemistry in France.

Two years ago, A. Wurtz wrote a history of the chemical theories since the time of Lavoisier, which he commenced with the statement that "Chemistry is a French science, founded by the immortal Lavoisier," and in which he ignores the labors and even the names of many of the most celebrated chemists of this century, among them Davy, Faraday, Liebig, Woehler, &c. Prof. Kolbe endeavors to show that this "history" was evidently written for the self-glorification of French chemists, and that even the French Academy of Sciences has degenerated since the time when savants like Berthollet, Gay-Lussac, Thénard, Dulong, Proust, Chevreul and others were members.

American Journal of Microscopy, devoted to the elucidation of scientific and popular microscopy. E. M. Hale, M.D., editor. Chicago: G. Mead & Co. publishers and proprietors. 8vo 32 pages. Monthly. \$2 a year.

With the growing interest into microscopical investigations, the publication of a journal entirely devoted to this subject is certainly very opportune. There are many microscopists scattered throughout the country who, if becoming regular contributors, could supply much interesting matter to its pages. Whether the combination of *scientific* and *popular* microscopy—in the sense in which these terms are usually employed together—will not detract from the value of the journal, remains to be seen. We trust that the editor may succeed in making it the exponent of microscopical researches on this continent; but there is hardly any evidence of such an aim discernible in the first number.

The Kansas City Medical Journal. Published bi-monthly. A. P. Laukford, M.D., editor, Kansas City, Mo. \$2 per annum. 8vo.

A new medical journal of the "far West," filled with practical and instructive original and selected matter, and in a handsome typographical suit.

Report of a Special Committee of the Medical Society of the District of Columbia upon the Claims of the Homœopaths and other Irregular Practitioners for Professional Recognition in the Medical Service of the U. S. Government, and the Charges brought by the Homœopaths against the U. S. Commissioner of Army and Navy Pensions. Published by resolution of the Medical Society. Washington, 1871.

The reception of this pamphlet is acknowledged.

The Medical Herald and Journal of Pharmacy. J. W. Brock, M. D., and Robert J. Brown, pharmacist, editors, Leavenworth, Kansas. 8vo. \$3 per annum.

Our friends in the West are stirring. We rejoice that in a locality where but a few short years ago a "buffalo hunt and a free fight with the Indians" were counted among the attractions, pharmacy has established itself on so firm a basis as to warrant the publication of a journal one-half of which is to be devoted to its interests, while the other half remains in the hands of her older sister, "Medicine." The first number under the new arrangement is to be published simultaneously with this issue; and, while we expect to see it succeed under the energetic management of our friend Brown, we trust that it will become the means of professional intercourse with a section of our vast country from which heretofore we have but rarely heard.

Chemistry: General, Medical and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. A manual on the general Principles of the Science, and their application to Medicine and Pharmacy. By John Atfield, Ph. D., F. C. S.; Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain. From the second and enlarged English edition. Revised by the author. Philadelphia: Henry C. Lea. 1871.

The first English edition of this work was noticed in this journal in 1868, on pages 93 and 190. The present volume was received too late for careful examination; we shall therefore defer a more extended report to the next number, and now merely state that we consider it a very practical guide for the laboratory as well as the shop, and that pharmacists and physicians will find it very instructive in the details of chemical investigations, analytical and practical, which they may undertake.

OBITUARY.

DR. J. B. HENKEL, Professor of Pharmacy at the University of Tübingen, died March 2d, 1871, in the 42d year of his age. Having been educated a pharmacist, he subsequently devoted his energies to scientific pursuits in the interest of the profession of his choice. He published in German several works on pharmaceutical subjects, among which we mention: *The Genuineness and Quality of Crude Vegetable Medicinal Products*, *Handbook of Pharmacognosy*, *Dictionary of Drugs*, and, in conjunction with Dr. G. Jäger and Dr. W. Städel, *The Elements of Pharmacy*, of which work the deceased wrote the botanical and pharmacognostical part. The Philadelphia College of Pharmacy loses in him one of its corresponding members.

JEAN JOSEPH EDOUARD HAUCHAMPS, Professor of Pharmacology at the University of Brussels, died in March last. He was one of the founders, and for a number of years one of the officers, of the Société de Pharmacie of that city.

THE
AMERICAN JOURNAL OF PHARMACY.

JUNE, 1871.

ON THE SEEDS OF TWO SPECIES OF STRYCHNOS.

By J. M. MAISCH.

(Read at the Pharmaceutical Meeting of the Philadelphia College of Pharmacy, May 16.)

Last fall, I was informed that a vessel, which had arrived at the port of New York from the East Indies, had brought, as ballast, a quantity of seeds of a species of *Strychnos*. To the kindness of Dr. Fr. Hoffmann I owe a small sample of the same, and subsequently, Messrs. McKesson & Robbins very kindly went to the trouble of hunting up for me a few pounds of the same seeds, which, under the name of *Indian gum-nuts*, were offered for sale in New York, without finding a purchaser. I felt interested to ascertain whether, like the seeds of some other strychnæ, they contain strychnia. I exhibited the seeds at the pharmaceutical meeting in February, and showed, at the same time, from my cabinet, some seeds of *Strychnos Tieute*, *Leschinault*. This plant grows in the mountainous districts of Java, and its juice is used by the Malays to prepare the poison called upas radja or upas tieuté tjettek. The tieute seeds are orbicular or somewhat oblong, disc-like, resembling in shape *nux vomica*, five-eighths to three-quarters of an inch in diameter, yellowish grey in color, and covered with soft, appressed hairs, having a silky lustre; the disc is rather sharp-edged, with a slightly-projecting point, indicating the hilum, and covering the somewhat club-shaped radicle of the embryo. As in *nux vomica*, the white horny albumen has the shape of the seed, and is composed of two discs united near the circumference, thus enclosing a hollow space, into which the cotyledons project, occupying one-quarter to one-third the diameter of the cav-

ity. The cotyledons are broadly oval, scarcely cordate, rather acute, three to five-nerved.

Spach* describes the tiente seeds as follows: Elliptic, oval or sub-orbicular, velvety, brownish, (brunâtre,) lenticular or plano-convex; embryo projecting from the hilum, marginal, about one-third shorter than the perisperm; cotyledons heart-shaped, acuminate, nerved, foliaceous; radicle club-shaped, as long as the cotyledons. The description corresponds closely with the tiente seeds in my possession, the color excepted.

The so-called Indian gum-nuts are subglobose, of an appearance as if composed of two unequally-convex halves, with an elevated line surrounding the largest circumference; they are of a dirty, somewhat brownish grey color, with very short, closely appressed hairs; the largest diameter is three-eighths to one-half inch. A rather thin, but hard, integument covers a horny albumen which encloses, as in *nux vomica*, an orbicular cavity, into which the embryo reaches to about one-third the diameter. The radicle is marginal, short, cylindrical; the cotyledons are broadly oval, somewhat acuminate, and about three-nerved. Notwithstanding the horny texture of the albumen, the seeds are readily broken in an iron mortar, but are difficult to powder; their taste is insipid, not bitter.

When the seeds are boiled with dilute muriatic acid, they become very soft, so that they are readily mashed between the fingers; the acid decoction, which is not precipitated by iodohydrargyrate of potassium, was treated with an excess of lime, the precipitate washed with cold water, dried, exhausted with boiling alcohol, and the clear filtrate evaporated; a yellowish mass was left without the slightest tendency to crystallize. It had an insipid taste, and did not show the color reactions of either *brucia* or *strychnia*; concentrated sulphuric acid decomposed it rapidly. The seeds, therefore, contain no alkaloid.

In the East Indies, the seeds of *Strychnos potatorum*, *Lin. fil.*, are used for clearing muddy water, under the name of tettan-kotta, or clearing-nut. Spach† describes them as greyish, suborbicular, about five lines in size. Dr. Waring‡ says they are of a flattened, spherical

* *Histoire Naturelle des Vegetaux. Phanérogames* viii, 485. Paris, 1839.

† *Loc. cit.*

‡ *Pharmacopœia of India*, p. 146. London, 1868.

form and yellowish grey color, having the testa covered with short, close hairs; albumen horny and tasteless. As far as they go, these descriptions agree with the Indian gum-nuts, which I believe to be derived from *Strychnos potatorum*, *Lin. fil.*

According to the Pharmacopœia of India, these seeds are also used in native practice as an emetic, (Ainslie,) as a remedy in diabetes, (Kirkpatrick,) gonorrhœa, (Taleef Shereef,) &c. On what principle the clearing action depends is a matter of speculation. Dr. O'Shaughnessy, at one time, thought it was due to an astringent principle, while Pereira * supposed it depending on the presence of albumen and casein, and Guibourt attributes it to mucilage or pectin. The seeds are free from tannin, contain but little albumen, while, in the few experiments instituted by me, I could not ascertain the presence of casein or pectin. A considerable proportion of a peculiar mucilage is present, which does not yield a very ropy solution, and is not precipitated by alcohol, acetate of lead or sesquichloride of iron. If vegetable matter is suspended in water, the turbid liquid put into two glass vessels, and solution of this mucilage added to one, the latter liquid will settle the suspended matter in a short time, while the other remains turbid much longer.

The testa appears to offer obstructions to the absorption of water by the albumen; for, if the testa be unbroken, the seeds may be immersed in cold water for twenty-four hours, and still retain their hardness; but, if the testa is partly removed, or the seeds are broken, the albumen, after twelve hours immersion in cold water, becomes soft enough to be readily split by the finger-nail.

SYRUPUS CALCIS LACTO-PHOSPHATIS.

BY WILLIAM NEERGAARD.

In the *Archives Generales de Médecine* for December, 1869, and for January and February, 1870, Dr. L. Dusart recommends the use of a new preparation, which he terms the lacto-phosphate of lime, in which the lime salt is dissolved in free lactic acid.

Dr. B. W. McCready, of our city, requested me to prepare a syrup containing that compound, and I adopted the following formula:

* Pharm. Jour. & Trans., ix, 478. 1850.

Concentrated Lactic Acid,	fl℥i,
Magma of freshly precipitated Phosphate of Lime,	q. s.,
Aquæ Fl. Aurant.,	fl℥iss,
Aquæ puræ,	q. s. ad fl℥viij,
Sacchari Albi,	℥xj.

Mix the lactic acid with 2 fluidounces of water, and saturate it with the magma. Put the liquid upon a filter, and add the rest of the water until 8 fluidounces of filtrate are obtained. Pour this upon the sugar, contained in a bottle; shake occasionally until solution is effected, and strain. No heat ought to be applied, else the syrup assumes a milky appearance.

The syrup thus prepared contains between 2 and 3 grains of dry phosphate of lime in each fl℥, besides the lactic acid.

Broadway, 1183, New York.

ELIXIR CINCHONÆ ET FERRI CHLORIDI.

BY W. W. SEAY.

I send you my formula for this preparation, which I have used for years, and found it very satisfactory in its results. It requires very great care in the details, but, properly prepared, will keep without blackening for an indefinite length of time. I have a sample on hand which has kept bright and clear for nearly six years. Each pint contains one troyounce of red bark, a little over one troyounce of aromatics, and the equivalent of one fluid-drachm of tinct. ferri chloridi (U. S. P.) The iron used is of course protochloride.

Elixir Cinchonæ.

R. Cinch. Rub. Pulv.,	℥xvj	} Troy weights are indicated, unless otherwise expressed.
Fresh Orange Peel, bruised,	℥x	
or recently dried,	℥v	
Sem. Angelicæ,	} in fine powder.	
Cinnamom. (Ceylon),		
Sem. Coriandri,		aa ℥v
“ Carui,		
“ Anisi,	aa ℥i et ℥vj	

M. Moisten with dilute alcohol, pack carefully in a funnel-shaped percolator, using a sufficient quantity of tow (free from tar) in the neck, to act as a filter. Pour on dil. alcohol until it percolates *nearly*

to the tow, and the surface of the powders is covered. Cork the percolator mouth, and allow to macerate for forty-eight hours. Now remove the cork and pour on dil. alcohol, and as fast as the tincture comes off, dissolve in each pint one pound avoirdupois of powdered sugar, until (Oxvj) sixteen pints are obtained of the elixir, and mix.

Sol. Ferri Chloridi (Proto-) (FeCl).

R. Sulphatis Ferr. (FeO , SO_3 , 7HO) av. oz. iv,
Sacch. Alb., av. oz. vj,
Aq. Bull. Oj.

Solve and filter whilst hot as rapidly as possible.

R. Sodæ Carb. Puræ Cryst. av. oz. v, *vel* q. s.
Aq. Bull., f̄viiij.

Solve, and filter while hot.

Mix the two solutions, pour the precipitated proto-carbonate of iron upon a calico filter, and wash thoroughly with boiling water, with an ounce of syr. simpl. to the pint, until the precipitate is free of soda. Dissolve the oxide in *pure* hydrochloric acid, being careful not to use an excess. Then add syr. simplex to make the solution measure twenty-two (f̄xxij) fluidounces.

Now take Elixir Cinchonæ, Cong. j,
Ac. Hydrochloric. Pur., 3j, (troy weight),
Alcohol., f̄iv.

M. by agitation, and then add

Sol. Ferri (Proto) Chloridi, f̄ij.

M. Dose for adult 3ij to 3iv, in water.

It has been my experience, when the chloride of iron is made *directly* from iron and muriatic acid, notwithstanding I used every precaution in selecting material and mode of preparation, it has blackened the elixir, either at once or in a short time afterwards. I have made the protochloride by various processes: double decomposition between FeO , SO_3 , 7HO , and BaCl , which makes a very beautiful solution under proper precautions, and keeps well. Where considerable quantities are to be made, the precipitation, washing and solution I perform in vessels exhausted of air and filled with hydrogen. The formula I sent you I used for years, until I have required larger lots, when I constructed an apparatus for the purpose. I have directed *boiling* water for the reason it is deprived of air, (and conse-

quently free from oxygen.) Care must be exercised in selection of the sulphate of iron used; those crystals having the least color are to be preferred, and those having the least trace of peroxide or persulphate in them to be rejected; by filtration of the solution the last remaining portions are got rid of. The carbonate, when thrown upon the filter, must be kept covered to the last moment with the hot water and syrup, otherwise it will rapidly oxidise. The whole operation must be performed as *carefully and rapidly as possible*, and when finished will be a beautiful and desirable preparation.

The more nearly the chloride approaches to a perfectly *pure* protochloride the better and longer it will keep. I have a sample of protochloride, made in hydrogen from sulph. of iron, in the form of a *heavy* syrup, composed of cane and grape sugars, which has kept perfectly for over one year, and I use it as circumstances call for it. It can be combined with any other tincture in the same manner as with cinchona. It has been decided by a number of physicians in my neighborhood that it requires a relative smaller dose of protochloride than sesquichloride of iron. Each tablespoonful (fʒss) of this elixir contains the same amount of metallic iron as five (5) drops of the officinal tincture of the sesquichloride. I will also state that it is necessary to add the sugar to the tincture as fast as it percolates through.

The sugar contained in the elixir prevents the oxidation and precipitation of iron, and the free HCl mixed with the elixir probably converts a portion of the cane sugar into grape sugar, and also keeps in *solution* any small quantity of the iron, which may pass into a "*per-basic*" condition.

I would like to call attention to the fact, that if comp. tinct. cinch. U. S. P. is percolated in same manner, and sugar added, it will prevent the usual precipitation which occurs in it on standing.

New York, May 6, 1871.

GLYCEROLE OF LUPULIN.

BY EMMET KANNAL.

(From the Author's Inaugural Essay.)

Take of Lupulin one troy ounce.

Alcohol, six fluid ounces.

Glycerin, nine fluid ounces.

Curaçao cordial, one fluid ounce.

Mix the alcohol with two fluid ounces of glycerin, moisten the lupulin with the mixture, pack into a cylindrical percolator, and continue to add this mixture until eight fluid ounces of the percolate has passed; to this add the remainder of glycerin, previously mixed with the curaçao, and thoroughly mix the whole together. This will afford, by careful manipulation, a very fine preparation, miscible with any of the officinal syrups or tinctures, and possessing all the medicinal properties of lupulin. Dose, for an adult, one teaspoonful, representing $7\frac{1}{2}$ grains of lupulin.

PHARMACEUTICAL NOTES.

Editor Amer. Jour. Pharmacy:

✓ I send you a formula for Tinct. Cinchonæ Comp. which I find does not deposit any sediment.*

Red Peruvian Bark,	34,
Bitter Orange Peel,	33,
Serpentaria,	grs. 360, moderately fine powder,
Saffron, "Spanish,"	grs. 120, moderately coarse powder,
Dilute Alcohol, using 2 parts stronger alcohol to 1 of water, a sufficient quantity to obtain by percolation $2\frac{1}{2}$ pints of tincture.	

I dispense with the Red Saunders, as I find no reason for its employment, and obtain a very dark and handsome tincture with the above formula.

I also send a formula for the very popular antacid soda mint:

Sodæ Bicarb.,	.	.	.	3i,
Spts. Ammon. Aromat.,	.	.	.	3i,
Aquæ Menth. Viridis,	.	.	.	f3ii.

M. Filter.

Dose: One to two tablespoonfuls for an adult; one-half to two teaspoonfuls for an infant.

I would like to see a better formula for soda mint, if any of the many readers of this journal will send it.

Yours,

W. RANSTEAD JONES.

Mt. Airy, Phila., April 26, 1871.

* See also Amer. Jour. Ph., 1861, p. 196.

LIQUOR PLUMBI SUBACETATIS.

By STEWART KELLAM, of Galveston, Texas.

(An Inaugural Essay.)

As it is of considerable interest to the Pharmaceutist to know the strength of the basic acetate of lead of the different Pharmacopœias, I have, in the laboratory of Dr. F. A. Genth, carefully prepared the different samples, and have examined them with reference to their specific gravity, and the amount of oxide of lead which they contain. The materials used for such preparations were first examined qualitatively. The acetate of lead was in thick, stout crystalline masses; the interior brilliant, and only the outside slightly coated with a more basic acetate; it was free from copper, and contained no other impurities.

The litharge, on the contrary, was of far less purity. I have examined six samples from different sources; they all contained carbonic acid, and minute traces of silver; two of them also metallic lead, and red oxide of lead; two were contaminated with oxides of iron and copper, with alumina and lime; and the other two showed, besides the impurities mentioned, silicic acid and tetroxide of antimony. As it is so very easy to obtain the pure oxide of lead by the calcination of the pure carbonate, it is advisable to prepare always the pure oxide for pharmaceutical preparations. I have prepared my solutions of the subacetate, both with the purest of the examined samples of commercial litharge, and with chemically pure oxide of lead.

1. Prepared according to the Pharmacopœia Badensis.—190 parts of sugar of lead are digested with 222 parts of oxide. I have tried the process by digesting, in a close flask, 12 grms. of acetate of lead with 14 grms. of litharge and 60 c. c. of distilled water for two days. The mixture, after a short time, had assumed a thick, pasty consistence, from the formation of a large percentage of the so-called $\frac{1}{6}$ acetate, and yielded such a small proportion of liquid that further experiments were not made.

2. According to the Prussian Pharmacopœia.—3 parts of acetate of lead are digested in a close flask for one or two days, with 1 part of litharge and 10 parts of water, and filtering the product after cooling, which then should have a specific gravity of 1.236—1.240.

An experiment made with 18 grms. acetate of lead, 6 grms. of litharge and 60 c. c. of water (distilled) gave, after digestion and

filtration of the small quantity of undissolved basic acetate, a clear liquid, which, however, after several days, deposited a slight precipitate. The specific gravity was found to be 1.238, and 19.3255 grms. of the liquid gave, when precipitated with sulphuric acid, and after the expulsion of the liberated acetic acid by evaporation, 5.0258 grms. sulphate lead, equal to 19.14 per cent. of oxide of lead.

3. The Bavarian Pharmacopœia takes, for three parts of acetate of lead, one part of litharge and eight parts of water, and boils down the mixture till the liquid has acquired a specific gravity of 1.360. According to Wittstein (Chemisch-Pharmaceutische Praeparate) it is easier and better, and yielding the same result, to take only one half the quantity of water. My experiment was made according to Wittstein, and 18 grms. of acetate of lead, with 6 grms. of oxide of lead, were digested with 33 grms. of water, and, after filtration, gave a clear liquid of 1.376 specific gravity. 12.5856 grms. gave 4.8464 grms. sulphate of lead, equal to 28.34 per cent. of oxide of lead.

4. The Pharmacopœia Gallica uses the same proportions of acetate and oxide of lead as the Bavarian; hence I did not deem it necessary to repeat my experiments with these proportions.

5. The Pharmacopœia Brittanica prepares the liquor plumbi subacetatis by taking 5 oz. (avoird.) of acetate of lead, $3\frac{1}{2}$ ounces of litharge, and one imperial pint of distilled water; boils for half an hour, constantly stirring the mixture; filters after cooling, and adds water to make the product 20 ounces. The specific gravity is 1.260.

In my experiment I have taken 20 grms. of acetate of lead, 14 grms. of litharge and 60 grms. of water, and added to the product the required quantity of water to produce 60 grms. of liquid. The specific gravity in my experiment was considerably higher, and found to be 1.353. 18.0218 grms. gave 6.5408 grms. sulphate lead, equal to 26.71 per cent. of oxide of lead.

6. Several experiments were made with the process recommended in the U. S. Pharmacopœia, with commercial litharge as well as with chemically pure oxide of lead, and, for comparison with these, others by using the cold process recommended by M. Nerning (see Am. Journ. of Pharm., Sept., 1870, p. 467. Pharm. Journ., July 9th, 1870, from Journ. de Pharmacie et de Chimie.)

I. *Hot process.* The required specific gravity of the product is 1.267.

A. I boiled for half an hour, 16 grms. of acetate of lead with 9.5 grms. of litharge and 64 grms. of distilled water. The product was a clear liquid of 1.265 specific gravity. 9.5588 grms. gave 2.9403 grms. of sulphate of lead, or 22.64 per cent. of oxide of lead.

B. The same proportions of ingredients were used, but c. p. oxide of lead in the place of litharge. The specific gravity of the product was 1.234. 14.2815 grms. gave 3.7053 grms. of sulphate of lead, equal to 19.09 per cent. of oxide of lead.

C. A repetition of the last experiment with a sample of acetate of lead from another source, gave a liquid of 1.230 specific gravity, 11.4528 grms. of which gave 2.9068 grms. sulphate of lead, equal to 18.68 per cent. of oxide of lead.

II. *Cold process.* The same proportions of the requisite substances were allowed to remain, with frequent agitation, in contact for 24 hours, and in experiment *a.*, made with litharge, gave a liquid of 1.243 specific gravity, of which 19.3736 grms. gave 5.2476 grms. sulphate of lead, which is equal to 19.93 per cent. of oxide of lead.

B. repeated with c. p. oxide of lead, I obtained a liquid of 1.242 specific gravity, of which 15.2463 grms. gave 4.1196 grms. of sulphate of lead, or 19.88 per cent. of oxide of lead.

C. A third experiment, which was made with acetate of lead from another source, yielded a liquid of 1.220 specific gravity. 13.1400 grms. of the same gave 3.2300 grms. of sulphate of lead, which represents 18.09 per cent. of oxide of lead.

From these experiments it will be seen that the liquor plumbi subacetatis obtained by the different Pharmacopœias yield very different products, but also that the same process gave products of not exactly the same composition, and as always the same care has been used in each case, I cannot account for differences of nearly 2 per cent. in the amount of oxide of lead (as has been found between No. 6, II A. and C.,) otherwise than that the very low temperature at the time of the preparation of C. is the cause of this and other discrepancies.

As a general observation I will add, that the preparations made in the cold appear to keep better than those obtained by boiling, the latter more readily depositing basic salts.

ON BAPTISIA TINCTORIA.

By JOHN A. WEAVER.

(Extracted from the Author's Inaugural Essay.)

[After giving a short botanical description of the plant, the author describes the root and its medicinal properties, and refers to the examination of Mr. B. L. Smedley published in Vol. XXXIV of this Journal, 1862, page 311. We extract the following from Mr. Weaver's experiments:]

Experiment 1st. Fifty troy ounces of the root was boiled with successive portions of water acidulated with hydrochloric acid, until completely exhausted. The decoctions were mixed, strained, and while still hot, precipitated by a dilute milk of lime. The precipitate was copious, of a snuff-brown color and disagreeable odor. The mother-liquor was reddish brown, and refused to yield further precipitate by the addition of ammonia. The precipitate was thoroughly washed with water, and after being dried and powdered was digested in boiling alcohol and filtered. The alcohol recovered by distillation left a brown, viscid mass behind. This was treated with water acidulated with sulphuric acid, boiled a few minutes with animal charcoal and filtered. The result was a clear, colorless liquid. Upon the addition of ammonia to a small portion of this, a white precipitate was obtained.

This was the process followed by Mr. Smedley, and this the "white feathery precipitate" supposed by him to be the alkaloid. A portion was collected and dried, found to be insoluble in water, alcohol or chloroform. It was inodorous, had but little taste and possessed none of the properties of an alkaloid. Dissolved in water acidulated by hydrochloric acid, nearly neutralized with ammonia, and oxalate of ammonia added, a white precipitate was at once formed, showing the presence of *lime*. To ascertain to what extent it was composed of this, or whether it contained anything else, I added the whole of the first solution to an equal bulk of alcohol. The lime being insoluble in this, separated, and was collected on a filter; from the filtrate the alcohol was recovered, and the remaining liquid still gave a precipitate with ammonia. This was white, inodorous and tasteless. Ignited upon platinum foil, it did not volatilize, but swelled up and left a spongy charcoal behind, which, on being heated with a drop of nitric acid, became white.

These experiments were carefully performed, and each one repeated several times, always showing the same result. So I am prepared to say, that what was formerly regarded as the vegetable alkaloid of *Baptisia tinctoria* was, in reality, a salt of lime.

Experiment 4th. To a concentrated tincture of the root was added sufficient sulphuric acid to cause it to redden litmus, and the evaporation carried on until a small bulk was obtained. This was mixed with an equal bulk of water and filtered. The filtrate, on standing, separated into two layers, a heavy oily liquid and a lighter, more fluid one. To the lighter liquid was added a large quantity of water which threw out the remaining resin, and, upon filtration gave a clear solution not affected by more water. Upon testing a quantity of this with Mayer's test, a copious precipitate was obtained. To another portion chloroform was added, shaken together and allowed to separate. The alkaloid being in the form of sulphate, was supposed to be insoluble in that menstruum, while most of the remaining oil and coloring matter was removed. After removing the subsiding liquid I added, first, solution of potassa in excess, then chloroform, shook them together and again separated the chloroform, which, on spontaneous evaporation, left a small quantity of a light yellow substance behind. Upon testing the lighter portion of the solution with Mayer's test, a copious precipitate was still obtained, showing that more of the alkaloid still remained than was taken up by the chloroform. I therefore precipitated the whole of it by an excess of iodohydrargyrate of potassium. The precipitate was collected, suspended in water, and decomposed by hydrosulphuric acid, which threw down black sulphide of mercury, and left the alkaloid as an iodide in solution. This solution was concentrated, and carbonate of ammonia added in slight excess. It was then shaken with chloroform, which, on being separated and evaporated, left an amorphous mass behind. This was dissolved in water acidulated with hydrochloric acid, boiled for a few minutes with purified animal charcoal and filtered. Upon concentrating this to one third its bulk, long needle-like crystals were formed. The mother liquor, upon being further concentrated, yielded more crystals, and by evaporating to dryness left a yellowish crystalline mass. This I thought to be the alkaloid, but by igniting on platinum foil, a large residue was left. I then digested the whole of it in alcohol, filtered and evaporated. The residue was of a yellowish color, amorphous, disagreeable odor and extremely nauseous and acrid taste. But it had

an acid reaction, owing to free hydrochloric acid, of which, unfortunately, it had not been entirely deprived before dissolving in the alcohol.

Being unable, for want of time, to repeat these last experiments, I was obliged to let the matter rest unfinished. But I am satisfied that when the alkaloid is isolated, this will be the proper course to pursue. The portion remaining undissolved in the alcohol, I afterwards found to be lime. In the course of my manipulations I found much resin, and a large quantity of a heavy fixed oil.

These experiments were conducted in the laboratory connected with our College, where, having every facility and the best of advice, I was enabled to proceed with accuracy.

ON THE CULTURE OF HOPS IN THE UNITED STATES.

BY EMMET KANNAL.

(From the Author's Inaugural Essay.)

Hops are indigenous to Asia, but are found growing wild in Europe and were cultivated to a considerable extent in Germany, as far back as the ninth century; they were first introduced into England from Flanders, in the year 1510, during the reign of King Henry VIII. The young tender shoots of the hop vine, especially in the beer countries of Europe, are much esteemed as an article of food; they are taken up when they appear just above the ground, and are cooked and eaten like asparagus or greens, being generally served up as one of the delicacies of the spring season.

When first introduced into London, about the year 1524, the people were very much prejudiced against the use of hops, so much so, that they petitioned King Henry to prohibit their use, claiming that they would spoil the taste of drinks, and endanger the lives of the people; after some time the King granted their petition, and issued an injunction prohibiting the use of hops in the manufacture of ale and beer in that country.

Hops are also found growing wild in hedges and thickets in most parts of the United States, abounding in the valleys of the Missouri and Mississippi Rivers. Many varieties are cultivated very extensively in our Eastern and Western States, but the kinds known as English Cluster and Grape Hops, seem to be most generally culti-

vated in the Hop Gardens of New York and Wisconsin; they give the greatest yield and are considered the very best.

Another variety called Pompey Hops is not so well known; the vines are very large, having long branches on which the hops hang in clusters. They are more apt to be injured by rust and insects than the other two kinds mentioned; both are early varieties.

Within the last twenty-five years the cultivation of hops has spread from the sea coast to the Mississippi River; the soil selected is usually of considerable elevation. Ground that will yield good corn and potatoes is very suitable for hops; it must be dry, rich and exposed to plenty of sunshine, very stony ground being objectionable, both on account of the difficulty in setting poles for the vines to climb, as well as the inconvenience and hard labor required in preparing and attending the soil, which may be greatly enriched and increase the growth by placing old bones around the roots of the vines. Shelter from cold winds is very necessary to protect the vines; thick woods and barren valleys are not well adapted for the growth of hops, since rust, blight and insects are likely to injure them in such localities, while sunshine and protection from cold winds may be regarded sure preventives for the same.

The vines are trained to twine around poles with the sun, by tying them on with strings. In the state of New York, where they are very extensively cultivated, great care is taken. A piece of high and dry ground is there selected, and men attend to the setting out, training, trimming, picking and drying at the proper time. Hop vines are generally set out during the spring months, and bear a crop of hops the same year; the usual time for gathering comes about September 1st, before any frost has appeared, which very much deteriorates them. To determine when they have come to maturity, and are ready to pick, is designated by the condition of the strobiles and the general appearance of the seed, which should be of a dark brown color and hard; the scales then commence to loosen, and when at this stage the strobiles should be collected. They are then dried, which is best done by artificial heat, great care being requisite not to apply too much heat, which would drive off the volatile principle and render the hops very brittle and unfit for market, through the loss of their lupulin in packing.

The total product of hops in the United States in 1850, was little more than three millions pounds; while in 1860, it had increased to

nearly eleven millions pounds, and of this amount the state of New York produced nine millions pounds. In the year 1861, about eight millions pounds were exported.

Hops, when packed in bales, are sometimes adulterated, the outside consisting of good hops, while the interior is filled with hops deprived of the lupulin, and sprinkled over with lycopodium and powdered rosin to hide the fraud.

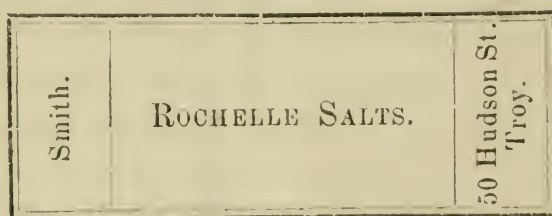
I have obtained from one pound of fair commercial hops, $1\frac{1}{4}$ oz lupulin; from a pound of fresh New York hops 1 oz, and from fresh Philadelphia hops $\frac{3}{4}$ oz, averaging 1 oz from the pound, or $6\frac{1}{4}$ per cent. The smaller yield in the last two cases was due to the fresh condition of the hops.

THE ÆSTHETICS OF LABELS.

BY JAMES R. MERCEIN.

“A good workman is known by his chips,” says the old adage; a careful pharmacist is known, or should be, by his labels, say I. Sent out as they are upon multiform parcels to the homes of our customers, they pass beyond our reach and speak for themselves—and for us. It behooves us, then, to be very circumspect as to the outward adorning of our dumb representatives. A roughly cut, badly printed label such as we too often see, is like a ‘shocking bad hat,’ on a well-dressed man, spoiling the *tout ensemble* and betraying the sloven. Pharmacists err in thinking their patrons inobservant of such seemingly small matters. The almost Egyptian mystery that surrounds the ordinary details of our profession baffles the looker-on, and he naturally judges us by our outward symbols and tokens, of which the label is the most familiar. *Ex pede Hercule*—if by the brazen foot the ancients estimated the statue, let us see to it, that the labels, our representatives, shall be a worthy exemplar of our work. The form of the label is the first point to be looked at. A round peg in a square hole does not look more out of place than an ill-shaped or over-sized label, and yet every day you will see a huge bit of paper on a ‘wee little’ bottle, or a diminutive scrap on a portly flagon, thereby neutralizing the good looks of both labels and vials. Of course there can be no definite rule as to proper sizes, but the pharmacist should train his eye and his taste intuitively to recognize the right proportions. Let him avoid exactly square labels, or those

abortive attempts which resemble monumental tablets. Double lines in the border, and rounded tops will give a label, printed in black ink especially, a tomb-stone look that must be suggestive to the patient. Hogarth insisted that the curve was the line of beauty, but if he had seen the shield-shaped labels now in such common use for 'Elixirs' and 'Syrups,' he would have retracted his assertion instantaneously. Tastes will differ of course, but to my eye these pharmaceutic esculchons are fearfully and wonderfully ugly. In fact, almost every irregular form of label, unless its matter is nicely distributed and its type selected with the greatest care, is apt to be very ungraceful. For steady use, the old-fashioned oblong label, in width not quite half its length, wears best and looks best. For packages, the strip label, long and narrow is preferable. Well printed and tied on, so that its upper edge lies on the edge of the fold, it sets off a handsome bundle. I annex a form of strip label, used by me for some years, which has the merit of novelty at any rate.



An octagon looks well on pill-boxes, and is a relief from the almost inevitable circle.

But it is in the printed matter, its distribution and its types where improvement is sadly needed. Why pharmacists in the progressive age should persist in using the stereotyped phrases in vogue thirty years ago, the same old-fashioned type, the venerable mortar, alembic and retort; why we should do these things because our fathers did so before us, is a mystery. The art of type-cutting presents us with so many varied forms of letters, that numberless combinations, novel yet elegant, can readily be made. The chief error with pharmacists is a tendency to over-crowd their labels with reading matter, one would think they were trying to advertise all their wares in this small space, and yet the truth is, beyond the publicity of name and address, the label is not an advertisement, but merely a voucher for the contents of the package. A few lines, terse and to the point, are far better than a crowded jumble of disjointed sentences. "A rivulet of text flowing through a meadow of margin," should be the rule, as

every printer will tell you. Useless verbiage and common place phrases should be avoided. "Fine drugs and chemicals constantly on hand," physicians' prescriptions carefully compounded, &c., &c.," should be treated with the respect due to old age—and laid aside. If we are good pharmacists these antique puffs will be unnecessary; if we are poor ones, such stale bait will not lure customers.

The titles that pharmacists assume are, as a general thing, decidedly inappropriate, and needing amendment. There is no doubt that the words "pharmaceutist," or "pharmacist," are more nearly correct as expressing our professional status, although some contend that these should be peculiar to graduates. Be this as it may, the nomenclature of to-day is wrong. "Druggist" means no more or less than a seller of drugs, crude or otherwise, and implies no skill. It puts us on a level with any tradesman who simply sells to gain; the word should be confined to wholesale dealers only. Even when yoked with "chemist," as it often is, it will not pass muster. How many of us can lay the slightest claim to being chemists, farther than the ordinary requirements of every day business will warrant the title; and yet we coolly force ourselves into the ranks of a profession that requires the life-long attention of a Liebig, a Berzelius, a Doremus, or a Bridges! "Dispensing chemist" is equally absurd or even more so. Who for a moment, aided by the most vivid imagination, could picture the above mentioned analysts dispensing senna and manna or mixing a dose of oil! The term "apothecary," is so exclusively English and refers to such a different mode of doing business, half medical and half pharmaceutical, that it is totally inapplicable here. "Pharmacist" expresses exactly what we are; is not so clumsy as "pharmaceutist," looks well on a label, and, better than all, does not make us appear like the jack-daw of the fable, in borrowed plumes. In closing this homily, it seems almost superfluous to hint at such inelegancies as pasting one label over another, or over the seam of a bottle; of putting it on crooked, or with ragged edges; but I feel that most of my pill-rolling brethren will bear me out in the assertion that these slips are too often made. "What is worth doing at all, is worth doing well," says another old adage.

NOTE ON HYDROCYANATE OF MORPHIA.

BY PROF. J. M. MAISCH.

Among the descriptions of morphia salts, as furnished by various chemists, the hydrocyanate is not enumerated. In Gmelin's Chemistry some double hydrocyanates are mentioned, but not the simple morphia salt, and, as far as I know, nothing is known of its formation or its properties.

A prescription having been received, calling for one grain each of acetate of morphia and cyanide of potassium in a 3 oz. mixture, the separation of needles was observed before the medicine was handed out; they were removed by straining, and found to be a salt of morphia. Although granulated cyanide of potassium was used, it was still possible that this salt might have been impure, and the formation of the crystals due to some impurity.

Pure hydrocyanic acid was therefore neutralized with ammonia, and the aqueous liquid diluted so that it contained in each fluidrachm one grain of pure cyanide of ammonium. This solution was experimented with like the solution of cyanide of potassium. The following contains the results of the experiments thus far obtained:

1. A neutral solution of a morphia salt, even if diluted to the proportion of 1:1500 (1 grain in $3\frac{1}{2}$ oz.), yields with a neutral cyanide a crystalline precipitate consisting of hydrocyanate of morphia.

2. After the crystals have separated, the filtrate, acidulated with nitric acid, yields no precipitate with iodohydrargyrate of potassium; the morphia hydrocyanate, therefore, if soluble at all, dissolves but very sparingly in water.

3. The solubility of the morphia hydrocyanate appears not to be increased by an excess of the precipitant.

4. The precipitate is readily dissolved if the liquid is slightly acidulated by a mineral acid; it is likewise soluble in acetic acid, and for this reason does not appear in a mixture containing syrup of squill.

5. Hydrocyanic acid does not precipitate a neutral solution of morphia.

It is obvious from the foregoing that morphia salts ought not to be prescribed simultaneously with neutral cyanides, except enough acid be added to retain the hydrocyanate of morphia in solution.

DETECTION OF TURMERIC IN POWDERED RHUBARB AND YELLOW MUSTARD.

BY J. M. MAISCH.

Rhubarb root which has been attacked by insects, or deteriorated in consequence of dampness and heat, is by some dealers sent to the mills and ground together with some sound rhubarb, or, if the color is not sufficiently bright, turmeric is added, and the powdered rhubarb finds its way afterwards into the hands of the unsuspecting as a prime article. The fraud may be detected in a few minutes in the following manner :

A small quantity of the suspected rhubarb is agitated for a minute or two with strong alcohol, and then filtered. Chrysophanic acid being sparingly soluble in this menstruum, the brown yellow color of the filtrate is due to the resinous principles of rhubarb mainly ; if adulterated with turmeric, the tincture will be of a brighter yellow shade. A strong solution of borax produces in both tinctures a deep red brown color. If now pure muriatic acid be added in large excess, the tincture of pure rhubarb will instantly assume a light yellow color, while the tincture of the adulterated powder will change merely to a lighter shade of brown red. The test is a very delicate one, and is based on the liberation of boracic acid, which imparts to curcumin a color similar to that produced by alkalies, while all the soluble principles of rhubarb yield pale yellow solutions in acid liquids.

The same test, applied in the same manner, is also applicable to ground mustard seed. The seeds of *Sinapis alba* yield a powder of a yellow grey color, entirely distinct from the color of yellow mustard met with in the market. Agitated with alcohol and filtered, a turbid solution is obtained, which assumes a bright yellow on the addition of the borax solution, and becomes colorless or whitish again on being supersaturated with muriatic acid. If the mustard be colored with turmeric, the filtrate has a yellow tint, becomes brown red by borax, and retains the color on the addition of muriatic acid. All the so-called yellow mustard of our commerce which I have had occasion to examine, whether ground in England or in the United States, contains turmeric. This practice ought to be discountenanced ; for, under the yellow color imparted by curcuma, adulteration of mustard may be carried on to an almost indefinite extent, if *strength* be supplied by the addition of a little capsicum.

REMARKS ON TWO OFFICIAL FLUID EXTRACTS.

BY X. T. BATES, M. D.

There are some important additions which the Committee for the Revision of the Pharmacopœia should consider, and the surest way to bring them to their attention and also to that of the public is the insertion of this article in the *American Journal of Pharmacy*.

Ext. Sarsap. Fluid. Comp.

This article, as now prepared, should contain, as an alterative, conium as well as pipsissewa and dulcamara. I have always added to the U. S. P. fluid ext. before using it, for each pint, two fluidounces of fluid ext. conium, two fluidounces of fluid ext. dulcamara, and two fluidounces of fluid ext. of princess pine, with very decided increase in its alterative effects, and have also added for each fluidounce of the above 10 grains iodid. potassium, 4 grains pyrophosphate iron; so that in the ordinary dose of one to two teaspoonfuls the patient gets $2\frac{1}{2}$ grs. of iodide of potassium and 1 grain of the iron salt, which is sufficient in this combination. As a general rule, preparations containing iron have too much, thus producing ill effects. No more should be taken than can be assimilated.

Ext. Buchu Fluidum.

This article at present is having a large sale, from the extensive advertising it receives, and the numerous and overstated purposes for which it is widely recommended. This article, as far as my experience with it goes, contains very little, if any, of the medical properties of the plant, and appears to be highly flavored with peppermint.

The Pharmacopœia does not provide for any compound preparation, nor have I met with any in the numerous publications on fluid extracts, except in the "*Journal of Materia Medica*," which proposes the following:

Take of Buchu Leaves,	.	.	.	16 troy oz.
Uva Ursi,	.	.	.	4 "
Cubebs,	.	.	.	4 "
Juniper Berries,	.	.	.	4 "

Cover with alcohol, 95 per cent., and macerate for a week; then exhaust with alcohol at 70°, and evaporate so as to measure twenty-eight (28) fluidounces.

I have tried this with great satisfaction, and have also modified it by substituting *pareria brava* for the cubebs in some cases.

I hope to make some suggestions concerning other articles which my experience has indicated as improvements in existing preparations.

Albany, May 13, 1871.

[We know little of the composition of the so-called fluid extracts of buchu, now largely advertised as proprietary medicines, but believe the author's remarks to be correct, that some, at least, contain scarcely any buchu. However, we desire to remind the author that fluid extract of buchu, prepared according to the U. S. Pharmacopœia, soon acquires a mint like odor.—EDITOR AMER. JOUR. PH.]

PEPSIN.

By G. A. ZWICK.

So much has been said and written about this remedy, that the subject would seem nearly exhausted. I desire, therefore, only to communicate the result of a few experiments just completed; these, with the investigations of others, may perhaps lead to the adoption of a formula for a preparation of this article in the next edition of our Pharmacopœia.

1st. A fresh stomach of a pig was emptied, and the slimy mucous substance scraped off, spread upon a glass plate, and dried.

2d. The mucous membrane (scraped off as above) was dissected from the body of the stomach, cut up into moderately fine pieces. This weighed 8 oz.; it was digested with \bar{z} viii pure glycerin (acidulated with \bar{z} ii muriatic acid) for twelve hours, expressed, and more glycerin added till \bar{z} viii were again obtained. This fluid was set aside, and separated after a few days; the clear was poured off and filtered, warming it a little to facilitate filtration.

3d. Another pig's stomach was cleanly washed and wiped, macerated with water (acidulated with hydrochloric acid) for 12 hours, this water poured off and more added, washing and rubbing the membrane well. All these washings and the first infusion of 12 hours, making 24 oz., were filtered, precipitated with acetate of lead, and treated with sulphuretted hydrogen, being the process mentioned in the U. S. Dispensatory, but the liquid pepsin was evaporated to \bar{z} viii only, not to dryness.

To compare these preparations they were tried with coagulated albumen.

- No. 1. Six-tenths ($\frac{6}{10}$) of a grain of the dry mucus dissolved 12 grains albumen.
- No. 2. One fluidrachm of the glycerin preparation dissolved 12 grains of albumen.
- No. 3. Five fluidrachms (5v) of the watery solution dissolved 12 grains of albumen.

The above result, however, does not represent the utmost solving power, excepting of No. 1. Nos. 2 and 3 suffered losses of pepsin. No. 2 lost pepsin on account of being digested and warmed while still in contact with the mucous membrane, and I am sure considerable pepsin was lost, as the mass became quite soft and pulpy. The process should be carried on cold. No. 3 lost some of the precipitate during washing. This process is not practicable in warm weather, as the liquors decompose rapidly.

Summing up my experience, I should take No. 2 as the process furnishing the most permanent preparation, being agreeable both to the eye and the palate of the patient. It has a bright, clear straw color, an agreeable bland taste, and could be made double the above strength. It is not subject to the changes and other objections of the powders, is ready when it passes out of the hands of the apothecary, without further mixing, and not objectionable in taste to the most fastidious.

Covington, Ky., May 12, 1871.

MINERAL SPRINGS IN IDAHO AND THEIR CALCAREOUS DEPOSITS.

By A. R ROESSLER.

A large number of samples of water from these springs have been received at the Geological Museum of the U. S. General Land Office, through courtesy of Hon. Wm. H. Hooper of the House of Representatives. They are situated in the south-eastern part of the Territory, on the sources of Bear River which empties into the north part of Great Salt Lake, and contributes largely to the saline contents of that dead sea of America. The names by which the formations are designated indicate their character to some extent, being named re-

spectively the Soda, Warm, Big, Steamboat, Iron, Favorite, &c. The mineral contents are carbonate of soda, carbonate and sulphate of lime, a salt of magnesia, carbonate of iron, and other substances to be more correctly determined by chemical analysis. From one of them carbonic acid gas is perpetually boiling and bubbling up, hence its name of the Steamboat Springs. The high temperature of another implies its origin in subterranean reservoirs where heat is communicated to it from the adjacent rocks. This is not astonishing when a casual survey is made of the surface rocks of this region, which are to a considerable extent basalt and trachyte, and proving the whole tract of country to have been once occupied by volcanoes, now extinct.

The water as it flows away from the springs carries with it the soda, magnesia and other soluble salts to be finally deposited in Salt Lake, but much of the insoluble salts, as the carbonate and sulphate of lime and the oxide of iron, are deposited around the mouth of the spring, and, coating moss, leaves, twigs, and other objects, forms very fantastic mosses of calcareous tufa, which are seen lying around in every direction. Some very beautiful mosses of this curious incrustation have also been received by the Commissioner of the Land Office and deserve a visit from those who are curious in mineral productions.—*Journal of Applied Chemistry, February, 1871.*

TESTING COCHINEAL.

BY J. M. MERRICK, JR., S. B.

I give in the following article the outlines of the method I am in the habit of using for testing samples of cochineal to ascertain their comparative coloring powers. I have not seen it described in print, and while it is a much closer and more accurate method than that which is based upon dyeing strips of mordanted woollen stuffs, it is preferable to the bleaching with chloride of lime method—as the oxidizing substance used, viz., potassic permanganate, does not precipitate the coloring matter of the cochineal.

I grind to a fine powder the samples to be tested, weigh out two or two and one-half grammes, and boil this amount in a capacious narrow-necked flask, with 750 c.c. of water, for one hour. The liquid is immediately filtered through dry paper filters, and tested when cold. To test it, 50 c.c. are measured in a flask of that capacity and poured

into another flask of about 200 c.c., and the measuring vessel rinsed with a definite quantity of water, say 10–15 c.c.

A weak solution of permanganate is then run in from a burette with a glass cock, the flask being shaken well after the addition of every 10 c.c.

So much permanganate solution is added that the cochineal extract shall be changed from its original color to a pink of the very faintest shade, almost yellow, in fact, but never reaching a full yellow. This pink shade should be persistent, that is, it should not turn yellow after standing fifteen minutes; and after a little practice it will be found very easy to obtain the tinge, which shows that the coloring matter is almost but not quite destroyed.

When a number of samples are to be compared I arrange an equal number of 200 c.c. flasks and test-tubes on the table, a tube standing in its rack in front of each flask. Then the *same* number of c.c. of the permanganate solution (which should be at least so weak that bulk for bulk of this and the cochineal solution will be required), is run into each flask, taking care to use too little to completely destroy the coloring matter in *all*. The flasks are well shaken and allowed to stand for ten minutes.

Part of the contents of each is then poured into the corresponding test-tube, and a glance at the tubes as they stand side by side will show which is the least affected by the bleaching liquid. This sample having been selected to serve as a standard, the contents of the test-tube are returned to this flask, and more permanganate solution is cautiously added, until a very faint pink tinge, which a fraction of a c.c. will turn to a full yellow, is obtained.

The number of c.c. used having been noted, a fresh trial is made, in which the c.c. required, minus one, are used, the flask agitated, and the last c.c. or part of it, as the whole may not be necessary, added. If the two results agree, the next sample is treated in the same way, and so on until all are tested.

I usually make a final trial by measuring the 50 c.c. of each solution into its flask, running in the permanganate in the ascertained amount into each as quickly as possible, letting the flask stand 10 minutes, and then making a comparison of all in the test-tubes.

If the shades are not exactly alike, a pretty good guess can generally be made of the fractions of c.c. required, which should be added, the contents of the tubes being joined to that in the flasks, and a second or third comparison thus made.

This is rather a long description of what in practice is a very simple and good process, the three principal points to be borne in mind being,

- 1st. To use a weak solution of permanganate.
- 2d. To have a very faint pink color as a standard of comparison.
- 3d. To let the liquids remain after agitation together 10–15 minutes before comparing them.

I may add, that it is very remarkable how little can be told of the value of a sample of cochineal by a mere physical examination, and that the frequent inconsistency between value and price is equally surprising. I have known samples to differ *thirty* per cent. in coloring power, and only one or two cents per pound in price.

Laboratory, 59 Broad street, Boston.

—*Amer. Chem., April, 1871.*

SULPHO-CARBOLATES.

By T. H. HUSTWICK.

From communications to this and other journals on the preparation of some of the above salts, I have gathered that the formation of sulpho-carbolate of zinc is best accomplished by a process of decomposition or displacement. In a late number of this Journal (No. 39) is given a process for the preparation of this salt by decomposing sulpho-carbolate of lead by metallic zinc; doubtless the salt of zinc thus formed is of great purity, but is it not possible that a salt of equal purity may be obtained by direct combination, saving both time and trouble? My own experience leads me to suppose that it may. I have made considerable quantities of sulpho-carbolates, and the *modus operandi* followed by me has been, in its essentials, that recommended by Mr. C. H. Wood in this Journal (Vol. X. 2d ser. No. 7); this process, however, gives a salt more or less colored and less crystallized than when pure. Where one of the alkalies or alkaline earths is the base, nothing more is required than to evaporate the neutral solution so far as to produce a good crop of crystals; these are to be well drained and redissolved for a second crystallization. For the zinc salt I have saturated the diluted acid with the oxide, evaporating the solution till, when quite cold, a nearly solid mass of crystals is left in the bottom of the basin; this reddish-colored magma is well broken up and allowed to rest a short time, when the supernatant liquor may be

removed, the remainder placed in a calico cloth and strongly pressed, by which a further quantity of red mother-liquor is got rid of, leaving a cake of sulpho-carbolate nearly pure; this, when again dissolved, filtered and sufficiently evaporated, yields the salt in a state of purity far surpassing any other sample I have ever seen. As the expressed cake is so nearly pure, almost the whole of it may be recovered by further evaporation. This procedure applies equally to iron and copper. To obtain the copper salt, the diluted acid is saturated with freshly-prepared moist carbonate of copper, producing a beautiful intensely green solution, which, no doubt will make an excellent color for druggists' show-bottles. The crystals, when large, are a brilliant blue, and form clusters of great beauty, but difficult to obtain as single crystals; when small, they are green, probably from containing less water of crystallization.

The iron salt was obtained by the action of the acid on fine iron wire; the color of the crude solution is a most intense violet, and, like that of copper, would doubtless make a good color for show-bottles. The expressed cake, though almost white, when dissolved, reproduces the characteristic violet in almost its original intensity; the crystals produced from this solution are violet-green, the green predominating; before their removal from the evaporating basin, they should be carefully washed with ice-cold water by means of a syringe, in order to free them from the colored mother-liquor which adheres with great pertinacity. A peculiarity of this salt is, that a freshly prepared solution is almost colorless, and without a trace of violet, but as it absorbs oxygen, peroxide of iron is precipitated, the violet tinge once more appears, and increases in intensity till it almost equals, in that respect, the crude solution.

These salts are all easily prepared, are very stable, and as they crystallize from pure solutions with great facility, and into regular geometric forms, they make capital show objects. Some crystals of the calcium salt that I now have are perfect rhombs. The way in which all these solutions, during the progress of crystallization, climb up and over the sides of the basin, by the force of capillary attraction, is rather astonishing, unequalled, as far as my observation goes, by any other compound; it is rather a nuisance, but may be completely prevented by slightly greasing the inside edge of the vessel. Into the chemical part of the question it is not my purpose to go, but the remarkable changes exhibited by some, at least, of the sulpho-carbo-

lates, under the action of high temperatures, shows there is room for further investigation. Exposed to the heat from a Bunsen's burner, the soda and potash salts exhibited all shades of color from pale pink to intense purple; and afterwards placed on the glowing embers of a bright fire, combustion takes place in a very similar manner to the old Pharaoh's serpents, leaving an ash equally bulky and eccentric. —*Pharm. Jour. and Trans.*, April 22, 1871, p. 845.

SOLUBILITY OF SULPHUR IN COAL TAR OIL.

BY C. WIDEMANN.

Eugene Pelouze, son of the celebrated chemist who died in 1867, observed that the oils obtained in distilling the tar produced by gas works, dissolve the largest amount of sulphur at a temperature approaching their boiling point. As soon as this temperature is lowered, the sulphur is precipitated in a crystallized form. This property can be used in industry for the extraction of the sulphur from the "solfatares," or sulphur ores coming from volcanoes, and especially in treating the matters used for the purification of common street gas. According to Lanning's process, coal tar oil having dissolved 43 grammes of sulphur at 130° Centigrade, and afterward cooled down to 15° Centigrade, produced 41 grammes of crystallized sulphur; then the same liquor heated and cooled alternately, dissolved and precipitated a new amount of sulphur.

In order to obtain the above results, only the heavy oil of the tar must be used, costing from 80c. to \$1 per 100 lbs. The oil is retained after every operation and can be used over again. This process is a great advantage over the sulphide of carbon, not only as regards the price, but also because they can be operated at a temperature below their boiling point, which is very high, thus doing away with the losses of evaporation and the great danger resulting from the use of sulphide of carbon.

The mixtures used for purifying gas, which are lost after being in use a certain time, contain an average of 40 per cent. of sulphur, associated with saw-dust, oxide of iron, and tar products. The extraction of this sulphur could not heretofore be economically done by the processes known, but with the process we describe it can be done. The following is the mode of treatment:

The old purifying mixtures having been desiccated by exposure to

the air under sheds, are then placed in cast iron cylinders, heated externally by steam, and disposed in such a way that a pressure of air can be given at will, thus increasing the flow of oil passing through the mixture. The heavy tar oil heated at a temperature of 130° C., by a steam worm passing through it, is allowed to pass from top to bottom over the mixture to be treated; the dissolving liquid collects in crystallizing vats, where, by cooling, the sulphur precipitates in crystals; this same oil is then, by a screw system, raised again into the heater, and allowed to pass over and over again by the same series of operations on the mixture, until all the sulphur is exhausted. The old purifying mixture retains a certain amount of the extractive oil, of which it is deprived by forcing through it a current of steam; thus obtaining nearly the whole amount of oil used.

The crude sulphur thus obtained is in octahedric crystals, colored black by a small amount of tarry substances. Purified by distillation, it possesses all the properties of pure sulphur.

In Europe and in this country, an immense amount of sulphur is lost with the mixtures which have been used in purifying gas. Though sulphur is comparatively low in price, experiments made on a large scale have proved that its extraction is profitable to the gas manufacturer, as the extractive matter and the matter from which the sulphur is to be extracted cost him nothing. From experiments I have personally made, I have found better results from an oil not possessing too high a gravity. The oil I have used with the best advantage weighed 0.995 grammes, and boiling at from 180° to 210° C. I have also found that it is necessary to operate at the temperature of 150° C., for fear the sulphur might decompose the oil, and produce sulphuretted hydrogen.—*Journ. of Applied Chem.*, April, 1871.

THE CRYSTALLIZATION OF CAMPHOR.

BY R. ROTHER.

The peculiar predilection of camphor for the crystalline form, is one of the petty annoyances inherent to the dispensing department. Insignificant as the objection may seem, it is nevertheless one for which the dispensing pharmacist is but too willing to accept a remedy. This difficulty is chiefly experienced with powdered camphor, but the objection, likewise, though in a less obvious degree, applies to the aqueous solution. The most perfect means of pulverizing

camphor, although not the most practicable, is undoubtedly the method by precipitation. The trituration with small quantities of chloroform, ether, benzine, and naphtha, has been proposed; but none of these substances possess any advantages over alcohol, which even still is preferable to all. There is no difficulty whatever in pulverizing camphor; the object is to retain it so.

For this purpose it has been suggested to triturate the camphor with small quantities of magnesium carbonate. If this management insured the pulverulent state indefinitely, the magnesium would often be objectionable. The writer has not tested the process, but was informed by good authority that it is not satisfactory; a similar result is experienced by precipitating the camphor with water from an alcoholic solution, holding the magnesium carbonate in suspension. Other dry substances, as starch, for instance, have been used with equally indifferent success. The writer, feeling the necessity of some alternative, and basing his theory of this crystallization upon the volatility of camphor, applied an ethereal solution of resin with a view of coating the particles with a deposit of resin. The experiment, however, yielded a negative result. The writer, assuming then that a non-volatile solvent might retard the crystallization, employed a small proportion of fixed oil—preferably castor oil. This addition is entirely unobjectionable, and although it does not strictly meet the most sanguine expectation of preventing crystallization, it yet modifies this tendency to such a degree that after a long trial the writer is so thoroughly satisfied with its peculiar advantages that the complete success of the experiment would have been scarcely hailed with more delight. The proportion of castor oil employed is about one part in thirty of camphor, or even less. It is added, together with the alcohol, to the camphor, and the whole triturated to the proper degree of fineness. The great advantage rests in the fact that the crystals of camphor subsequently formed are exceedingly minute, and the oil entirely removes the very disagreeable adhesiveness and tenacity of the camphor, which becomes so troublesome during the trituration of pure camphor. Camphor containing the oil can be triturated in large or small quantities, without in the least clogging the mortar or pestle. The powder, after keeping even a long time, mixes perfectly and with facility with all the ordinary ingredients with which it is usually combined in prescriptions. The peculiar gumminess has been perfectly removed by the intervention of the oil.

The aqueous solution of camphor is another point at issue. It has been supposed that during cold weather camphor water drops part of its camphor. However, this phenomenon is only apparent. The writer has often been struck by the extraordinary solvent power of very cold water upon camphor, so that during the coldest winter weather the cold water drawn fresh from the hydrant, and having a very low temperature, always yielded the strongest camphor water, which, when subjected to the warm temperature of the room, deposited camphor abundantly and in weighable quantities, not upon the glass above the liquid, but floating in beautiful crystals in the liquid itself; so much so that the water was often filtered again before use.

To verify the above conclusion, the writer employed lukewarm water. The camphor was first finely triturated with the aid of alcohol, then with the magnesium carbonate, first rubbed through a coarse sieve, then with a portion of the water, and poured into a capacious bottle; the remainder of the water was then gradually added, and the mixture violently shaken during the intervals, and finally filtered. (This is essentially the writer's manipulation for the aromatic waters.) The bottle containing the filtrate was securely corked and allowed to cool. After six hours a very thin film of crystalline camphor had deposited on the walls of the bottle above the liquid, the latter containing no visible trace, not even floating upon the surface. The liquid was again filtered and exposed to intense cold for a long time, but no more camphor separated, although the liquid possessed the taste of camphor in a marked degree. Therefore, to make camphor water, free from separated camphor, use lukewarm water, or use water of the ordinary temperature, let it become equalized to the temperature of the room, and after a repose of twenty-four hours, filter. But to make a super-saturated camphor water, employ water having a very low temperature.—*The Pharmacist*, April, 1871.

ANALYSES OF SECRET REMEDIES, ETC.

BY DR. EHRHARDT.

RECEIVED for analysis from Dr. R——l, Boston, a bottle of "*Ludwig's*" *Anti-Cholera Acid*, advertised in the Western States, and sold at \$ 5.00 per four ounce bottle.

Result: 1 part concentrated sulphuric acid.

5 parts wine.

10 parts water.

From the same. "*Hatte's Remedy for Diseases of the Eye.*" Under this name is sold: 1. A Balsam. 2. An Eyewater.

THE BALSAM is put up in small tin boxes, on the cover of which are engraved the letters P. H. On the paper cover is a seal, with an eye; over it the words "Eye Balsam;" and underneath, the letters J. P. H. The following is the exact composition of this highly prized balsam.

1 draehm of butter.

2 grs. extract red sandal wood.

THE EYEWATER.—This is contained in a small bottle, with the seal the same as on the tin.

Digest the flowers of rosemary in spirit of rosemary, and this wonderful eyewater is ready.

Dr. Halliday, of St. Louis, sends a sample of *Kalydon's and Gowland's Cosmetic Wash*.

A lady having used about one bottle, had a very disagreeable and obstinate eruption on her face, which lasted several weeks.

1 ounce bitter almonds (the skin being removed).

8 grains bichloride of mercury.

1 pound rosewater.

All these rubbed together in a mortar, pressed and filtered, make the wash.

In the directions for use, it is stated that a few drops should be mixed with the water in a wash basin. Such a small quantity certainly could not produce such ill effect as above mentioned.

The simplest means of preserving anatomical and pathological preparations is the use of the following solution:

Saturated solution of alum, 100 grammes.

Saltpetre, 2 grammes.

The article to be preserved is immersed in the solution, when it becomes decolorized; but in a few days the color returns, when it is taken out of the solution, and kept in a saturated solution of alum and water only.

TEST FOR BLOOD-STAINS.

The following test will show the smallest quantities of blood, even after a long time, and where attempts have been made to remove

them, notwithstanding the destruction of the blood globules. If the smallest quantity of coloring matter remains the test is sure. The crystals which are obtained in this test are so characteristic, and form under such peculiar circumstances, that it is impossible to be deceived. The following is the *modus operandi*:

Some of the fluid obtained by the usual means of washing the spot with distilled water is put in a watch crystal; add a little of the solution of common salt, and let it dry under the bellglass of an air-pump, near a glass containing sulphuric acid. Now wash the deposit on the crystal with acid acetic. glae; evaporate to dryness at a temperature of 100° C. on the water-bath; then add a few drops of water, and watch the crystallization under the microscope. Any one who has once seen and watched the crystallization can never be mistaken.—*Medical Gazette*, May 6th, 1871.

ON THE FLOWERS OF *ARALIA SPINOSA* L., AND *HEDERA HELIX* L.

By THOMAS MEEHAN.

The study of *Aralia spinosa*, L., affords some interesting facts which do not seem to have attracted the attention of other observers.

In Dr. Gray's indispensable *Manual of Botany*, it is said to be "more or less polygamous." I have had many specimens under my daily observation this season, from the earliest opening till the last blossom appeared, and find that it is much more nearly monœcious than the above quotation would imply.

There are three different sets of flowers corresponding to the thrice compound branchlets of the large panicle. When the flower scape elongates, it seems suddenly arrested at a given point, and a very strong umbel of *female* flowers appears at the apex. A great number of secondary branches appear along this main one; and they also suddenly terminate each with an umbel of female flowers. From these secondary branches a third series appear, and these flowers are well filled with anthers that are abundantly polleniferous. The female organs of these flowers of the third class, are, however, defective, as only a few bear capsules, and in these a large portion of the seeds have no ovules. The polygamous character is confined to this third series of flower, the first two having purely pistillate blossoms. In these there do not seem to be the rudiments of stamens.

The most remarkable part of this process of development is, that the whole of this first series of female flowers should open so long before the male ones come, that they fall unfertilized. Most part of the second series also fall, and the crops of seeds is mainly made up of a few of the last opening ones of the section, and the comparatively few hermaphrodite ones which are found in those of the third class. It is a matter for curious speculation what special benefit it can be to the plant to spend so much force on the production of female flowers too early to mature, and then producing such an immense mass of pollen to go utterly to waste.

It may not be amiss to note, that in the common carrot the earlier strong umbels have often a male flower in the centre; and that while the usual flowers are of a pure white, this one is a crimson color. In the central umbels of *Aralia spinosa*, and at times on spurs along the branchlets of the panicle are similar colored processes, so small that their form cannot be made out by a common pocket lens. Our fellow member, Dr. J. Gibbons Hunt, makes them out, under the dissecting microscope, to be vase-like forms with five minute reflexed segments, and with a small solid disk in the centre. It is interesting as evidently being a successful attempt of an abortive flower to simulate in some respects a real one of another character.

Examining, also, the flowers of the allied European Evergreen Ivy, *Hedera Helix*, L., I find similar laws of distribution of the sexes as in *Aralia spinosa*, with the addition of a somewhat different structure in the male from the female flowers.

In Europe the plant is described as often having a single umbel as a flower spike. It is quite likely in these cases the flowers are hermaphrodite. In all the cases I have met here, the inflorescence is a compound of several umbels,—a terminal one—female, and the lateral ones male, as in *Aralia*. But there are rudiments of stamens in the flower, and in occasional instances I find a filament developed; but never, so far, with any polleniferous anthers. The flowers of the central female umbel have rather longer and stronger pedicles than the lateral male ones. The calyx is united with the ovarium for one-half its length, and the latter much developed in the unopened flower. In the male the segments of the calyx are two-thirds free, and the petals are much longer than in the female flowers.

As in *Aralia spinosa*, the male flowers do not open until some time after the female ones; and not before some of the latter, impatient of delay, have fallen unfertilized.

I have so often and in so many ways demonstrated to the Academy that in plants the male element is a latter and inferior creation, that it seems almost superogatory to point out that these plants illustrate the same principle. But it is a part of the record of what I believe to be unobserved facts in relation to these species, therefore I briefly allude to them.—*Proc. Acad. Nat. Sci.*, No. 3, 1870.

Varieties.

The Camphor Tree of Sumatra.—Among the most luxuriant and valuable trees of the island of Sumatra, the first place belongs to the *Dryobalanops camphora*. The tree is straight, extraordinarily tall, and has a gigantic crown, which often overtops the other woody giants by one hundred feet or so. The stem is sometimes twenty feet thick. According to the natives, there are three kinds of camphor tree, which they name “mailenguan,” “marbin tungan,” and “marbin targan,” from the outward color of the bark, which is sometimes yellow, sometimes black, and often red. The bark is round and grooved, and is overgrown with moss. The leaves are of a dark green, oblong oval in shape and pointed. The outward form of the fruit is very like that of the acorn, but it has five round petals. These are placed somewhat apart from each other, and the whole form much resembles a lily. The fruit is also impregnated with camphor, and is eaten by the natives when it is well ripened and fresh.

The amazing height of the tree hinders the regular gathering, but when the tree yields its fruit, which takes place in March, April and May, the population go out to collect it, which they speedily effect, as, if the fruit be allowed to remain four days on the ground, it sends forth a root about the length of a finger, and becomes unfit to be eaten. Among other things, the fruit prepared with sugar furnishes a tasty comfit or article of confectionery. It is said that it is very unhealthy to remain near the camphor tree during the flowering season, because of the extraordinary hot exhalations from it during that period. The greater the age of the tree the more camphor it contains. Usually the order of the rajah is given for a number of men, say thirty, to gather camphor in the bush belonging to territory which he claims.

The men appointed then seek for a place where many trees grow together; there they construct rude huts. The tree is cut down just above the roots, after which it is divided into small pieces, and these are afterward split, upon which the camphor, which is found in hollows and crevices in the body of the tree, and, above all, in the knots and swellings of branches from the trunk, becomes visible in the form of granules or grains. The quantity of camphor yielded by a single tree seldom amounts to more than half a pound, and if we take into account the great and long continued labor requisite in gathering it, we have the natural reply to the question why it fetches so high a price. At the same time that the camphor is gathered—that is, during the cutting down of the tree

—the oil that then drips from the cuttings is caught in considerable quantity. It is seldom brought to market, because, probably, the price, considering the trouble of carriage, is not sufficiently remunerative.

When the oil is offered for sale at Baros, the usual price is one guilder for an ordinary quart wine-bottleful. The production of Baros camphor lessens yearly, and the profitable operations of former times—say in the year 1853, when fully 1,250 pounds were sent from Padang to Batavia—will never return. Since time out of mind the beautiful clumps and clusters of camphor trees have been destroyed in a ruthless manner. Young and old have been felled, and as no planting or means of renewal has taken place, but the growth of the trees has been left to nature, it is not improbable that this noble species will ere long wholly disappear from Sumatra.—*Chem. and Drug., Lond., Jan. 14, 1871.*

Pharmacy in Paris during the Insurrection.—The advantages possessed by iron revolving shutters have generally been admitted, but few, I think, ever found them more useful than did the shopkeepers and pharmacists in the neighborhood of the Place Vendôme on Wednesday last. Since the horrors of the siege, Paris had been gradually sliding into the old grooves; strangers reappeared, letters and telegrams seemed no longer a strange and new pleasure, and commerce had reinstated herself. It was unfortunately but the lull before the storm. Three days before, the Place Vendôme had been occupied by the insurgent battalions of the National Guard, the pretending friends of order, who, at the approach of a peaceful unarmed deputation headed by the journalist Henri de Pène, discharged more than 500 shots into the crowd, killing over twenty and wounding about sixty persons. In an instant the pavement was red with blood, and the dead and dying were carried into the neighboring pharmacies, to receive what attention could be given to them, awaiting the arrival of the surgeons. Ambulance stretchers were soon procured, and mournful processions, headed by men bearing large white flags with the Geneva cross, traversed the streets of Paris, exciting the hate and loathing with which all orderly citizens regard the resumption of a new reign of terror at the hands of the Belleville insurgents. All business, except the mournful duty of stanching death-wounds, is over for the present in this usually gay quarter of Paris. Half a dozen blood-stained mattresses piled in a corner of nearly every pharmacy tell their own sad tale, and the once white marble floors are variegated and slippery as the pavement of the Piazza San Marco, at Venice, on a rainy day. All the shops are closed, and peremptory commands to shut all windows fronting the street are issued in loud tones, accompanied by menaces from loaded chassepots. In comparison with this, the siege was quite enviable; then, at all events, shops were open, and one could walk about the central parts of the city in perfect safety.

And then a certain amount of business was done—business of the pathetic kind. Wives, sisters and sweethearts came and bought pocket pharmacies, little stocks of lint and plaster, perchloride of iron, etc., for their dear friends about to start for the fields of battle. Many a tear was shed over the purchase, many a wish uttered that those dear to them should never require the sad appliances of modern civilization to heal the wounds caused by the destructive

engines of modern barbarity. Alas! how many hopes have been scattered to the wind! How many pale, weeping figures, clothed in black, are daily to be seen carrying in pious hands wreaths of "immortelles," to deck the rude crosses that lie thick at Montretout and for miles around. The past was dreadful enough, gilded over by a coating of patriotism; the present is doubly fearful—brother against brother, and no canopy of glory, but one reeking shroud of vengeance, hatred and bloodshed.

The siege, by provoking the appetite, instigated curious researches among the edibles generally found in pharmacies. As long as a few tins of concentrated milk remained, we fared luxuriously on arrowroot puddings and oatmeal gruel; in fact, a tolerable pharmaceutical dinner, save the monotony, was daily procurable, and consisted of a soup of Liebig's extract thickened with tapioca or pearl-barley. A *hors d'œuvre* of anchovy paste or olives; then a *pièce de résistance*, such as curried horseflesh, or a cat's thigh strong with garlic, a salad of mustard and young flax, which we grew in boxes in the cellars, a dessert of Jordan almonds and conserve of hips, and a strong cup of coffee with which to wash all down. When the bread became almost uneatable, Hard's food was brought into requisition—the dough was cleanly made in a large pestle and mortar, with a due proportion of bicarbonate of soda and hydrochloric acid, and baked into light little loaves, or rather cakes, of surpassing delicacy of flavor. Our distaste for horseflesh induced us to invent sundry *bouquets*, the success of which was so great in imparting a really pleasant flavor to the insipid meat, that I am sure no *cordon bleu* should ignore their utility. The favorite consisted of a clove of garlic and a pinch of peppercorns, corianders, cloves, parsley-seed, dried thyme and ginger, bruised together and tied in a piece of muslin.

The only article for which an extraordinary demand existed was extract of meat. Tonics were much taken, and resulted in several new specialities, rather more ingenious than tasty, such as a combined essence of calisaya and Liebig prepared with Cognac!

ERNEST J. T. AGNEW.

232 Rue de Rivoli, March 22nd, 1871.

—Pharm. Journ., Lond., April 1, 1871.

Will Snake-Poison Kill a Snake?—Dr. Fayrer, in India, has been experimenting to correct the popular error that a snake cannot kill a snake. He took a young and very lively cobra, fourteen inches long, and which was bitten in the muscular part of the body by a krait forty-eight inches long. The krait had not bitten for some days before. From a detailed report by Dr. Fayrer, it appears that the cobra was bitten at 12.50 P.M. At 1 P.M. it was very sluggish, at 1.3 P.M. so sluggish that it moved with difficulty, could be easily handled, and made no effort at resistance. At 1.20 it was apparently dying, and its movements were scarcely perceptible, and at 1.22 it died, thirty-two minutes after the attack. Dr. Fayrer has found that the water-snakes of India are deadly poisonous. In the Bay of Bengal they swarm, and it is noted as ominous that lately it was proposed to erect a sea-bathing establishment for Calcutta at Barwar, under the assurance that there were no sharks. It is remarked

that sharks need not be noticed when a bather may have deadly water-snakes swimming after him.—*Pharm. Journ., Lond., April 1, 1871, from Nature.*

Test for Silver-Plating.—In the January number of *Polytechnisches Journal von Dingler* is a simple process by Professor Böttger for testing the genuineness of silver-plating on metals, which may be of value to many. The metallic surface is carefully cleaned, and a drop of a cold saturated solution of bichromate of potash in nitric acid is placed upon it, and immediately washed off with cold water. If the surface is silver, a blood-red spot of chromate of silver is formed, whereas on German silver or Britannia metal the stain is brown or black.—*Pharm. Journ., Lond., April 1, 1871, from Athenæum.*

Vulcanized Rubber Sponge.—A more or less cellular mass has been, for some time past, produced from rubber, which presents the combined compactness and elasticity required of a bath-sponge in such a degree that it will very likely find an extensive application for many purposes for which the natural sponge alone has hitherto been used. All that can be learned about the process, which as yet has been kept a secret, is, that the rubber is repeatedly vulcanized, taken up by a solvent, and poured into moulds. The color of this sponge is generally dark gray, but brown ones are also found. Large quantities are sold to livery-stables, where they are used to clean horses, in place of the ordinary combs. The handle consists of hard rubber. It is stated that they take the dust more completely away, that no hairs are detached by them, and that they give to the hair a finer lustre. Sponges are also fabricated for cleaning cloth, hats, ribbons, gloves, mirrors, windows, etc. These sponges are preferable to the ordinary ones, being free from sand, and capable, by reason of their greater elasticity, of adapting themselves to every surface.—*Technologist, May, 1871.*

New Bleaching Liquid.—A new substance for bleaching wool and silk according to a French patent of Frezon—a solution of common salt and oxalic acid—very efficiently replaces the old process of sulphuring. This mixture answers well for silk in all states, and also for raw, spun, or woven wool. It is composed of 4 lbs. oxalic acid, 4 lbs. common salt, and 200 quarts of water. The goods are placed therein for one hour, and then washed in the river.—*Technologist, May, 1871, from Musterzeitung fuer Faerberei, 1870, No. 13.*

Sandal-Wood.—This valuable wood was formerly obtained by the East India Company in large quantities from the Fejee Islands. As many as seven large Indiamen have been known to be lying at anchor in one of the bays at once, waiting for cargoes of the precious wood. The trees have been felled with such reckless improvidence, that, on the shores of this same bay, a solitary sapling, planted by a missionary, is now the only living sandal-tree for many miles around.—*Technologist, May, 1871.*

Salt in Kentucky.—The manufacture of salt on quite an extensive scale has been commenced at Brandenburg, Meade County, Ky. Five or six salt-wells near that place have been running for several years, but until recently they

have not been developed. They have fallen into the hands of enterprising men, who are said to be working them with good success. The salt water is boiled by gas obtained from the same wells from which the water flows.—*Technologist*, May, 1871.

Bromide of Iron is recommended by Dr. N. H. Norris, of Beloit, Wis., as almost a specific in involuntary seminal emissions and spermatorrhœa. He has given it three times daily, an hour before or after meals, in doses of 3 to 5 grs., rubbed up in a little syrup; at bedtime a sufficient quantity is given to produce good refreshing sleep, free from lascivious dreams, for which purpose 10 grains are usually sufficient, but as much as 20 grains have been given without injury.—*The North-western Med. and Surg. Journ.*, April, 1871, 313--315.

Pharmaceutical Colleges and Associations.

Philadelphia College of Pharmacy.—The last pharmaceutical meeting of the present season was held on the 16th of May. It is hoped that when they are resumed, next fall, they will be even better attended, and be of still greater interest than those of the year 1870-71.

The Board of Trustees have, for the coming winter, again placed Professor J. M. Maisch in charge of the practical and analytical laboratory connected with this College. The laboratory will be kept open for the instruction in practical and analytical chemistry and pharmacy, every day (Sundays excepted), from 9 A. M. till 1 P. M. Instruction will be given in qualitative and (to advanced students) in quantitative, also in proximate analysis, in technical and in pharmaceutical chemistry. Students may elect any one or more or all week days for attendance, either for the entire term (five months) or a fraction thereof. Encouraged by the attendance last winter, and with the view of placing this important feature of pharmaceutical education within the reach of all, the fee has been considerably reduced.

Massachusetts College of Pharmacy.—On the evening of March 18th the third annual commencement was held in Horticultural Hall, in the city of Boston, and the degree of Graduate in Pharmacy was conferred on five young gentlemen by the President, Mr. Samuel M. Colcord. The valedictory address was delivered by Professor George F. H. Markoe.

Newark Pharmaceutical Association.—A formulary of elixirs and unofficial preparations has been published by this Association, and a circular issued to the medical profession of the city of Newark, wherein they deprecate the prescribing of such fancy preparations of particular manufactures, since many of these elixirs cannot possibly contain what they profess to. The members of the Association propose in all cases to dispense those made according to the formulas agreed upon, unless a special preparation is indicated.

The Maryland College of Pharmacy, we are pleased to learn, is endeavoring to secure a permanent "home," by purchasing or erecting a suitable building.

College of Pharmacy of the City of New York.—The graduates of this Institution held a meeting on the 24th of May, and formed an alumni association.

The following officers were elected :

President, Daniel C. Robbins, N. Y. *Vice Presidents*, Edward Henes, N. Y. ; John W. Ballard, Davenport, Iowa ; Henry C. Muse, Elmira, N. Y. *Treasurer*, Th. Frohwein, N. Y. *Secretary*, T. F. Main, N. Y. *Executive Committee*, Chas. B. Smith, Newark, N. J. ; Geo. W. C. Phillips, Jersey City, N. J. ; Gustavus Krebbiel, N. Y. ; Geo. G. Sands, N. Y. ; P. W. Bedford, N. Y. ; Wm. Muir, Brooklyn, N. Y. *Committee on By Laws*, Messrs. Bedford, Wright and Close.

The meeting then adjourned until Wednesday, June 7th.

The Columbia Pharmaceutical Association was organized at Washington, D. C., in April last, by 26 pharmacists. If we are to judge by some of the members, whom we happen to know, we may expect this new organization to become a stimulus to our brethren on the Potomac of entering more frequently into scientific intercourse with the other parts of our country. The officers are : Wm. S. Thompson, President ; J. D. O'Donnell, F. S. Gaither, Vice-Presidents ; J. C. Fill, Recording Secretary ; Oscar Oldberg, Corresponding Secretary ; Z. W. Cromwell, Treasurer ; D. P. Hickling, Librarian ; F. D. Dowling, Curator.

The Chicago College of Pharmacy.—In the session lately closed in this institution the usual commencement exercises were omitted in view of the fact that it was the first course of instruction given before the College during several years, and, as a consequence, the attendants were almost exclusively first course students, and not eligible to graduation. The only exception to this rule was in the case of Mr. F. M. Goodman, of this city, upon whom the degree was conferred.

The Trustees of the College are highly gratified with the success which has so far followed the re-establishment of the School of Pharmacy, and look forward to its future prosperity as a certainty. With the coming season a more extended and more thoroughly systematized course of instruction will be inaugurated—full particulars of which we hope to be able to present to our readers in our next issue.—*The Pharmacist*, April, 1871.

Kansas College of Pharmacy.—One or two meetings of this institution could not be held for the want of a quorum ; but we learn that measures are in progress to have it well represented at the next national meeting.

The California Pharmaceutical Society.—The twenty-first meeting of the California Pharmaceutical Society was held on the evening of April 19th, Mr. Calvert (the President) in the chair. Owing to the resignation of Mr. Perkins, who has removed to a distant State, Mr. G. G. Burnett was appointed Recording Secretary, *pro tem*.

Mr. Steele, the Corresponding Secretary, presented to the meeting a large and interesting correspondence. Among other letters, those from Professor

Maisch, of Philadelphia, and Mr. Tufts, the Treasurer of the American Pharmaceutical Association, were read.

The report of the Executive Committee was read and approved. Mr. Steele next read the Constitution and By-Laws of the Society, amended with a view to incorporation. These were approved, article by article, and the Executive Committee empowered to take immediate steps for the incorporation of the Society.

The following is the report of the Executive Committee :

The Executive Committee of the California Pharmaceutical Society herewith present the Constitution and By-Laws of the Society amended with a view to the speedy incorporation of the Society, according to the laws of the State of California.

The pharmacentists throughout the country are gradually awakening to the importance of a thorough practical and scientific pharmaceutical education, in order to place the practice of pharmacy where it properly belongs—among the learned professions, a rank already accorded to it in most parts of Europe—and as to further develope this sentiment among our fellow pharmacentists was the prime motive in organizing the California Pharmaceutical Society. we regard it he duty and interest of all pharmacentists to identify themselves with us.

That in order to elevate the standard of pharmaceutical education in our midst an institution aiming at the objects expressed in our Constitution is absolutely necessary, we think all must concede.

The practice of pharmacy has been placed under legislative restriction in most parts of Europe, and as is well known sumptuary and restraining laws have been passed recently by the Legislatures of various States of the Union; and a regard for our own reputation would seem to require us to prepare and offer a bill providing for the examination and registration of apothecaries to the Legislature at its next session.

Knowing it to be the will of our organization that we enroll ourselves among the incorporate bodies of the land, that thereby we may strengthen and increase our influence, and provide for our future prosperity; and believing that our action herein is but the prelude to the early establishment of a College of Pharmacy, we offer this report with a sincerely expressed hope that the wishes of our hearts in the matter of the elevation of the character of the pharmaceutical profession in our State may be gradually and effectually accomplished.

(Signed)

WILLIAM SIMPSON,
WILLIAM GEARY,
W. T. WENZELL,
WM. E. MAYHEW,
JAMES G. STEELE,
Committee.

Pharmaceutical Association in Mississippi.—At the fourth annual meeting of the State Medical Association of Mississippi, held at Meridian in the beginning of last April, the following resolution, offered by Dr. Barnett, was adopted :

Resolved, That the druggists, pharmacentists and chemists of the State of Mississippi be requested to call a convention at an early day, and organize a State Pharmaceutical Association, to meet annually at the same time and place that the Medical Association does, and co-operate with it in any and all measures of mutual interest and importance.

Knowing that at least one attempt, which was then unsuccessful, has been made, of establishing a State pharmaceutical association, it is to be hoped that the pharmacists of Mississippi may renew their efforts, so that they may be represented as a body at the meeting of the American Pharmaceutical Association to be held in St. Louis in September next.

Minutes of the Pharmaceutical Meetings.

At the meeting held May 16th, 1871, Dr. Wilson H. Pile presiding, the minutes of the last meeting were read and approved.

A paper was read by Prof. Maisch, on the Seeds of a Species of *Strychnos*, brought to New York by a vessel from the East Indies, and exhibited at the meeting in February. On motion, it was referred to the Publication Committee. He finds them destitute of the alkaloids. (See page 241.)

Dr. Pile exhibited four specimens of syrup of iodide of iron, made with glucose, instead of syrup, which is directed in the U. S. Pharm. His object had been to ascertain whether the effect of such substitution would be to promote the preservation of the iodide without change. Three of the specimens had undergone more change of color than would have been expected in the officinal syrup, and the other was nearly in the condition that would have been anticipated if prepared by the Pharmacopœia process.

S. Mason McCollin stated that he used glucose as an addition to a variety of syrups, or rather to simple syrup to be used as a basis to medicated or flavored syrups, with a view to giving it more body, without increasing the tendency to precipitate.

Dr. Pile called attention to the tendency to precipitate, which constitutes one of the difficulties in manipulating with the syrups of the phosphates, and inquired whether it might not be accounted for by impurities in the sugar. Some manufacturers of these preparations had assured him that they gave the preference to "Lovering's Sugar," and found no difficulty with it. T. S. Wiegand, Prof. Parrish and others dissented from this view, stating that there was, according to their experience, very little difference between the products of the several sugar refineries that supply our market.

Prof. Maisch having observed a crystalline precipitation in mixing solution of morphia with cyanide of potassium, exhibited the results of some of his experiments, and reported that hydrocyanate of morphia is nearly insoluble in water and in an excess of the precipitant, but dissolves readily in diluted mineral acids. The experiments were made with granular cyanide of potassium and with cyanide of ammonium, prepared from hydrocyanic acid and ammonia.

Then adjourned.

CLEMONS PARRISH, *Secretary.*

Editorial Department.

PURCHASE OF HONORARY (?) DEGREES.—The Boston *Medical and Surgical Journal*, of May 18th, publishes, under the above caption, a correspondence between two gentlemen in Boston and a person by the name of A. J. Hale, M. D., who, during the latter half of last year, has been perambulating the streets of Philadelphia, and our neighboring city of Camden, and in January last had made the city of Newark, N. J., his home. The correspondence is decidedly rich, and proves that this Dr. A. J. Hale is a very enterprising genius, so that we consider it our editorial duty to give publicity to his benificent labors, without charging him for the advertisement or the editorial "puff." Our readers will perhaps remember that in 1867 (see Am. Journ. Ph. 1867, p. 473) we ventilated a little the Collegiate Agency of one G. W. Marriott, D.D., M.A., M.D. This Doctor Hale has followed in the footsteps of his illustrious predecessor; in fact, he appears to rather outshine this lesser light. He is obliging enough to promise satiating the hungry ones with "the honors of all the universities in the United States, such as the degree of A.M., A.B., M.D., S.D.D., D.D., LL.D., &c." It is true that, as it appears from the correspondence, the degree of M.D. is procurable only from the *American University* here; but "this is a regular made out Latin degree the same as issued to regular graduates; name in full and date wished will be required." This Latin degree is all right; for, "yes, sir, the university with which I am connected is a reality; a regularly chartered medical institution, now in successful operation, all right and legal."

All this is very fine and exceedingly satisfactory, and it must be confessed that the terms are not unjustly exacting; the applicant may be "accommodated for the lowest price (\$50), sent by express, C. O. D." Moreover, a commission of twenty per cent. (\$10) will be allowed on each order from your friends, so that little exertion will be required to obtain such a legal all-right Latin degree for nothing, and make something handsome besides.

This same Doctor A. J. Hale likewise "removes cancers and other tumors without the use of knife or caustic," and "imparts information for a reasonable sum."

In view of the benefit conferred upon mankind by such a Collegiate Agency for such a University, it cannot be otherwise but reflecting infinite credit upon the city and State blessed with such institutions, and upon the Legislature which has chartered it and permits it to extend its blessings over other portions of our great country. Poor ignorant Europe should, without further delay, be supplied with agencies. Agencies would prosper in the icy fields of Alaska, and in the sunny clime of the Hottentots. It is with the desire of extending this "business" that we give the above information, and disclaim all expectations of gratitude from any of the parties interested.

ACKNOWLEDGEMENT.—We omitted to state in our last issue that the Committee appointed by the American Pharmaceutical Association to prepare an address to the North German Apothecaries' Society, have received an answer

thereto, signed in the name of the directory, by Mr. W. Danckwortt, the presiding officer, under date of Magdeburg, Feb. 14th, 1871.

THE NEW YORK BOARD FOR EXAMINING APOTHECARIES.—Last winter the New York newspapers raised an outcry against the *murderous drug clerks*. The excitement thus created served as an excuse for increasing the political patronage of the Mayor. During the last session of the New York Legislature, not less than three different bills were before that body, out of which number not the best one has been adopted, that which was favored by the New York College of Pharmacy having been ignored. The provisions of the law now in force are as follows:

Sect. 1. Authorizes the Mayor to appoint a board to consist of one skilled pharmacist, one practical druggist, and two regular physicians, who are to examine all druggists and clerks; it also forbids the putting up or attempt to make up physicians' prescriptions without previously having received the certificate of the board; fine not more than \$500, or imprisonment not over six months, or both.

Sect. 2. Vacancies are to be filled by the appointment of some other physician, chemist or druggist.

Sect. 3. Organization of the board must take place within ten days after appointment. A practical druggist is to be appointed as secretary of the board.

Sect. 4. Duty of the board: Examination of all persons employed or hereafter to be employed in putting up prescriptions or dispensing medicines in the city of New York; if found competent, they receive a certificate, which shall be deemed as a license to engage in such employment.

Sect. 5. The board, with the approval of the Mayor, fix the sum to be paid for the certificate; the money thus received shall be used for the payment of the salaries and other expenses, and any surplus paid into the city treasury; a return of receipts and disbursements is to be made to the city Comptroller once in 3 months.

Sect. 6. The board of Supervisors shall fix the compensation—not to exceed \$2500 per annum—of each member of the board, and of the secretary, and shall raise, by tax on real and personal property in the city of New York, such sum as may be necessary to pay any balance for expenses and salaries not covered by the examination fee.

It will be observed that the appointment and removal rests with the Mayor, and since this officer in all our large cities is nearly always elected for political reasons, it will not be long before this examining board will consist of politicians, rather than of men who have the welfare of pharmacy at heart. Since a distinction is made in Sect. 1 between pharmacutists and druggists, the framers of the bill evidently intended that the former should be and remain in the minority in a board that has to pass judgment on the capability of pharmacutists, while one-half of the board consists of physicians, who, as such, have no idea of the requisites of a reliable prescriptionist. The careful wording of Sect. 2 seems even to indicate, as if the small voice allowed to the pharmacists in this board may be abrogated altogether; for vacancies, from whatever cause, shall be filled by some other physician, chemist or druggist: the word *pharmaceutist* does not occur here.

It is also noteworthy that no provision is made for apprentices to learn, under the guidance and supervision of others, how to put up prescriptions.

The high salaries form another objectionable feature of this law. While it will not be contended that, after the licensing of the pharmacists at present engaged in New York city has been accomplished, there will be the shadow of a necessity of the board to be in session daily during the usual office hours, it follows that subsequently, the licensing of every so-called drug clerk for New York city will cost her a round sum of \$150, if the applications amount to one hundred annually. Five salaried officers, at \$2500 each, cost annually \$12,500; add thereto, for rent for office, cost of furniture, stationery, and other expenses, \$2500 per annum, and the sum of \$15,000 will be reached, for which New York will have done nothing, except supplying fine positions to five men, and this circumstance alone will cause these offices to be eagerly sought for. If the city would expend one third of that sum annually to the New York College of Pharmacy, the money would go far towards increasing the facilities for pharmaceutical education, and the examination and licensing of applicants, if entrusted to the College, in lieu of such a grant, would be performed better and more satisfactorily.

The law, in our opinion, has no redeeming feature whatever, aside even from its ignoring the existence of pharmaceutical educational institutions in this and other countries; and we fear that the public will find it no greater security against the *murderous drug clerks*, while it certainly has the advantage of increasing the taxation for the benevolent purpose of creating some fat offices.

CABINET SPECIMENS.—Attention is called to the following notice of the Curator of the Philadelphia College of Pharmacy. In various parts of the country, certain indigenous drugs are employed, either by physicians in domestic practice, which are never or very rarely met with in commerce, or usually appear in commerce in a ground condition. Some commercial indigenous drugs, as, for instance, *cyripedium*, are evidently obtained from at least two different species of plants. We mention these instances to show that it is in the power of most of the numerous friends and graduates of the College to contribute their mite towards the completion of the College cabinet:

The Philadelphia College of Pharmacy, having (since the removal to the new building) enlarged facilities for the exhibition of chemical and pharmaceutical specimens and products, solicit donations to the Cabinet. It is believed that many rare specimens, now in the possession of single individuals, thus having but a limited sphere of usefulness, might be profitably placed in the College, and be the means of gratifying and instructing many. Contributions may be forwarded to the College, 145 N. 10th street, care of

JOSEPH P. REMINGTON, *Curator*.

APOTHECARIES ARE LIQUOR DEALERS.—According to a decision recently rendered by General A. Pleasonton, the Internal Revenue Commissioner, the Act of Congress of July 14th, 1870, has also abolished the exemption heretofore provided for apothecaries, by the Act of July 13th, 1866, which exemption has not been affected by the various amendatory laws passed afterwards. Section 79, § 33, was as follows:

“Apothecaries shall pay ten dollars * * * * Nor shall apothecaries, who have paid the special tax, be required to pay the tax as retail dealers in liquors in consequence of selling alcohol or of selling of, or of dispensing upon physi-

cians' prescriptions the wines and spirits officinal in the United States and other National Pharmacopœias, in quantities not exceeding half a pint of either at any one time, nor exceeding in aggregate cost value the sum of three hundred dollars per annum."

As we understand the decision of General Pleasanton, the repeal of the special tax heretofore paid by apothecaries, carries with it the above exemption granted on the payment of this special tax under the former Internal Revenue laws. Apothecaries are therefore, after the 30th of April last, subject to the same liability as any other person for the sale of distilled spirits, wines or malt liquors in any quantity, and without reference to the purposes for or manner in which they are sold, that is to say, alcohol in any form and for whatever purpose, and for the dispensing of such spirits and liquors upon physicians prescriptions, and for strictly medicinal purposes. Hence apothecaries must take out licenses as retail dealers in liquor.

The decision of the Commissioner is probably valid in law, but we doubt the intention of Congress of imposing this tax upon apothecaries and thus stamping them as liquor dealers. From the very inception of the Internal Revenue laws, Congress has always shown a disposition to keep legitimate pharmacy entirely distinct from the traffic in liquors; expressions which in former laws were not explicit enough or liable to misinterpretation, were changed so that every facility was given to pharmacists to carry on their business that was consistent with the object of the law, and the restrictions were only such as were necessary to prevent evasions of that part of it which imposed heavier taxation upon the commodity of spirits used as beverage. It is, for this reason, but fair to suppose that, in repealing the so-called special tax, the removal of the exemption clause was not contemplated. We regret that the law of 1870 is not more explicit on this point; while believing that apothecaries, like all other good citizens, are willing to have their fair share of taxation, we cannot but deplore the necessity that compels us to be *liquor dealers* in the eyes of the law, before we can be pharmacists.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Chemistry: General, Medical and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. A manual on the general principles of the science and their applications to medicine and pharmacy. By John Attfield, Ph.D., F.C.S., &c. From the second and enlarged English edition. Revised by the author. Philadelphia: Henry C. Lea. 1871. 8vo, 552 pages. Price, \$2.75; bound in leather, \$3.25.

A more careful examination of this work has fully confirmed the opinion which we expressed in our last number (p. 240). It is a valuable guide to the medical and pharmaceutical student who, by practical experiments, desires to gain a thorough knowledge of chemistry.

The author, after a short introduction, makes the student acquainted with the general properties of the non-metallic elements, explains then the derivation of names and the symbols of the elements, and gives a succinct account of the principles of chemical philosophy, explaining, as they occur, the etymology of scientific terms. The student is now made acquainted with the metallic

elements, their official preparations and tests, and, in a similar manner, with the acids. A concise description of systematic (qualitative) analysis is followed by organic chemistry (exclusive of the acids), toxicological analysis, examination of morbid urine and calculi, quantitative (volumetric and gravimetric) analysis and dialysis. An appendix, containing several valuable tables, and a full index complete the volume.

If we consider the large scope and the small size of the work, it is astonishing what an immense number of facts the author succeeded in embracing in this space. This was possible only through conciseness and terseness of language, and by a systematic arrangement avoiding repetitions as much as possible, which has occasionally been accomplished only at the cost of convenience; thus, the well-known reaction of morphia with nitric acid is not found among the analytical reactions of this alkaloid (p. 318), nor does the index indicate where to look for it. It is, however, described under brucia (p. 324), to distinguish the reaction of the former from the similar one of the latter alkaloid.

Under the synthetical reactions the official (the author's term, and defended by him some time ago in the *Pharm. Journ. and Trans.*) processes of the British and U. S. Pharmacopœias are mentioned and explained. In some instances, the latter has not received the full attention it deserved, for the pharmaceutical student at least. The employment of bicarbonate of potassa, for instance, in the preparation of various chemicals was directed on account of the greater purity of this salt as compared with the carbonate, and for the purpose of avoiding the previous preparation of potassæ carbonas pura. The process of the same pharmacopœia for the two bismuth salts is based on the sparing solubility of arseniate of bismuth in *dilute* acids, which still hold the nitrate in solution, the precipitate which occurs on long standing containing most of the arsenic, which element is removed only with difficulty from metallic bismuth by fusion with oxidizing agents, but completely, as the author correctly states, by evaporating the solution in nitric acid to crystallization.

In most instances the characteristic tests are mainly given, though those of secondary importance are generally alluded to.

The least satisfactory portion, in our opinion, is that treating of organic chemistry, in which part we miss some important facts, and find others strangely misstated. We miss (page 321) the beautiful test of Herapath for the cinchona alkaloids, find no discriminating test between quinia and quinidia, except the relative solubility in ether, and still observe in the chlorine and ammonia test the statement that fresh chlorine water is required, while the beautiful emerald green color is produced in a liquid strongly acidulated with muriatic acid, provided only that the quinia solution be dilute, or, in other words, that quinia, chlorine and ammonia be present in a certain relative proportion, the precise limits of which, we believe, have never been determined.

We have never manipulated with lobelina (p. 328), but, as we understand Prof. Procter's experiments, this alkaloid is *not* volatile; on the contrary, it decomposes on the application of heat, unless combined with an acid.

A truly unaccountable statement of the author appears on p. 329, under the head of veratria. It is alleged here that "this alkaloid occurs as gallate of veratria in various species of *Veratrum* (as *Ver. album*, *Ver. viride*) in Ceva-

dilla and in the cormus or so-called root of *Colchicum autumnale*. White hellebore is also said to contain three other alkaloids—sabadillia, colchicia and jervia." This has to be corrected to read that cevadilla contains veratria and sabadillia; *Ver. album*, jervia and another alkaloid (which is most likely *not* veratria); *Ver. viride*, *no* veratria, but two other alkaloids (C. Bullock). Colchicum contains colchicia, which in 1820 Pelletier and Caventon declared to be identical with veratria, but which the researches of Geiger and Hesse, Carter, Hübschmann, Bley, Oberlin, Hübler, Diehl and others proved to be distinct.

On page 341 we miss the fact that the bark of *Cerasus serotina* yields hydrocyanic acid; on pages 344 and 346 the conversion of the resins of the Convolvulaceæ by fixed alkalies into acids, soluble in water, is omitted, and the statement is repeated, which has never been proven, that the etherial resin of the true jalap is identical with the resin of *Ipomœa orizabensis*.

Notwithstanding these defects and some others of minor importance, we heartily recommend this work to the pharmacist and physician. The latter will be particularly pleased with the urinary analysis, which is illustrated with a number of good wood cuts of microscopical tests; and both professions will derive much information from the several tables contained in the work, particularly the analytical tables, and the tables of solubilities and of impurities, although our Pharmacopœia gives some special tests which are not alluded to in this table.

Half-yearly Compendium of Medical Science. A Synopsis of the American and Foreign Literature of Medicine Surgery and the Collateral Sciences, for six months, edited by S. W. Butler, M. D., D. G. Brinton, M. D., and by H. Napheys, M. D., Part VII, January, 1871. Philadelphia, S. W. Butler, M. D. Price, single numbers, \$2; per annum, in advance, \$3.

The delay in the publication of this number was caused by the loss of a large and important portion of copy by the printer, which for a long time was concealed from the publisher, and when concealment became impossible, it required considerable time to supply the loss.

The number before us is a volume of 338 pages, containing nearly 300 articles collated from 117 American and 173 foreign writers, and culled from 73 different publications. The material from French sources is less than usual, in consequence of the war prevailing in that country during the latter half of last year. The selections appear to have been made with considerable care and are judiciously arranged. The references to the journals containing the original articles are in most cases sufficient; but occasionally the date of the journal is omitted; and where the original appeared in a publication in a foreign language, reference might have been made to the English or American journal in which the article has found its way, so as to facilitate future researches.

In glancing over the pages of this compendium, we observe many typographical errors,—as for instance, podophylli resinza on page 54, in most cases easily corrected; on page 54 the word aconitine is used twice in the place of aconite or aconitum; lococtonum should be lycoctonum. But the greatest oversights occur in the titles of foreign journals, and particularly of the German language, which, as a rule, are spelled incorrectly, while comparatively few misspellings have been made with the French journals.

The work is well gotten up in all other respects, and will doubtless prove useful to the physician as a book of reference on the latest observations and improvements in all departments of medical science.

Second and Third Annual Report of the Trustees of the Peabody Academy of Science, for the years 1869 and 1870. Salem, 1871.

A pamphlet of 110 pages containing the Proceedings of the Trustees, also the exercises held and addresses made at the dedication of the museum of this institution, which was founded by the munificence of the late Mr. Peabody. Five papers on scientific subjects are appended, being mostly lists of zoological specimens added to the museum, or collected by different naturalists in southern countries.

OBITUARY.

Paris papers announce the death of ANTOINE CESAR BECQUEREL, the celebrated electrician. He died in Normandy, while the siege of Paris was progressing, and very likely the sad event was hastened by the fatigue of his hasty flight from the capital. As nearly all the members of the French Academy of Sciences remained at their posts to assist the Committee of Defense, the departure of the Becquerels, father and son, was much criticised; but the advanced age of the senior afforded a good excuse for the step he decided to take.

Becquerel was born March 8, 1788, and at the time of his death was, therefore, in his 84th year. He was three years older than Faraday, and during his long life had been a contributor to the same department of knowledge as the great English philosopher, whose death we had occasion to announce in 1867. Between the years 1834 and 1840 he published his great treatise on electricity and magnetism, in seven large octavo volumes. This was followed by "Physics in its Relations to Chemistry," in two volumes; and the number of his contributions to the proceedings of the Academy, and to the journals of science, has been very great. He was one of the most prolific of French writers, and retained a remarkable vigor of intellect to the last. His son, Alexander Edmond Becquerel, born in Paris in 1820, is a worthy representative of the father, and is the author of many investigations on electricity and magnetism. The similarity of the name has led to much confusion, and much of the younger Becquerel's work has been credited to the father. Another son, Alfred, is an eminent physician, and the author of valuable papers in his department of science. —*Scientific American.*

PROFESSOR DR. MITSCHERLICH, the well known Berlin pharmacologist, and brother of the celebrated chemist who died some years ago, died in that city March 18th last, after an illness of several weeks.

JOHN D. OWEN departed this life May 3d in Louisville, Ky., after an illness of twenty days with typhoid fever. The deceased learned the drug and apothecary business with Messrs. R. A. Robinson and Co., of Louisville, afterwards served with Edw. Wilder and Co., and finally connected himself with the firm of Owen and Sutton. Having attended two courses of lectures at the Philadelphia College of Pharmacy and having devoted considerable time to the study of Chemistry under the guidance of Prof. Genth, he graduated with high honors last Spring. He was a promising young man of good sound judgment, was well liked by his fellow students and became endeared to his teachers through his diligence and devotion to pharmaceutical studies.

THE
AMERICAN JOURNAL OF PHARMACY.

JULY, 1871.

ON CUNDURANGO.

BY THOMAS ANTISELL, M. D.

In the month of March of this year, Mr. Flores, Minister of Ecuador at Washington, forwarded a box containing a vegetable medicament which he had received from his government for presentation to the State Department, and requested that some analyses and experiments might be made with it, to test its medicinal value. The samples of the drug were stated to have grown in the province of Loja, Ecuador, and extracts from the official journal accompanied the parcel, showing that great medicinal virtues were attributed to the wood and bark of the tree known as *Cundurango*. The extracts were testimonials from Doctors Cæsares and Eguigureu of that province, as to its great value in cancer, fungus hæmatodes and constitutional syphilis. These statements were supported by a letter from Mr. Rumsey Wing, our minister resident at Ecuador, to Hon. H. Fish, Secretary of State, testifying to the medicinal virtues of the plant as admitted by the natives of Loja, in which he mentions that a decoction of the fruit is known to be a poison, and that the parts of the plant used medicinally are the bark and leaves.

During the month of April a sample of the plant (small branches) were received at this Department, from Hon. Mr. Fish, with the request to have an analysis made and reported to him for the benefit of the Ecuador government. Meanwhile the plant itself had been tried, in the form of a decoction, upon some patients in this city affected with cancer, and with apparent considerable relief to the sufferers.

About one pound and a quarter in weight were received for analysis.

The sample consisted of stem and branches of apparently a shrub,

but was unaccompanied by leaf or root, so that the botanical characters of the plant could not be determined.

The stem is woody and covered by a greenish or ash grey bark, the former tint being due to the lichens on its surface; the branches are from a half inch to a little over an inch in diameter, averaging about the thickness of the finger; the woody fibre is straw colored and brittle, breaking with a sharp fracture; it is almost tasteless, having a slightly aromatic and bitter flavor when chewed.

The bark contains whatever medicinal virtues are in the plant; of grey color, slightly ribbed or fluted longitudinally from unequal contraction while drying on the branch; increasing in thickness in proportion to the diameter of the woody stem, in the thicker branches constituting more than half the weight of the whole, in the thinner somewhat less than half; readily separable from the stem by pounding or bruising, when it comes off in clean longitudinal pieces, brittle in the transverse fracture; of a warm, aromatic, camphor and bitter taste, resembling the cascarilla of the old collections. Under the lens it is readily resolvable into three layers: 1st, the inner layer or cambium of reticular woody tissue, having granules of starch and particles of resin imbedded. 2d, a middle layer of woody fibre and dotted ducts; resinous particles also in this layer; and 3d the cuticular or outer layer of cells of a brownish color, and containing coloring matter and tannic acid.

The usual methods of filtration from digestion in the usual solvents, as gasolene boiling at 110°, ether, alcohol, carbon disulphide and water &c. were adopted.

1. Ratio of bark to wood

Bark	49.72	} Mean of these experiments.
Wood	50.28	
<hr/>		
100.		

2. 100 parts of bark yield

Moisture at 100° C.	8.
Mineral salts (ash)	12.
Vegetable substance	80.
<hr/>	
100.	

3. This vegetable matter was separable into the following:

Fatty matter soluble in ether and partially in strong alcohol	.7
Yellow resin soluble in alcohol	2.7
Gum and glucose from starch	.5
Tannin, yellow and brown coloring matters (extractive)	12.6
Cellulose, lignin, &c.	63.5
	<hr/> 80.

No crystalline alkaloid or active principle was separable by the usual methods of proximate analysis. A plan similar to that used for cinchona alkaloids and also that by precipitation with diacetate of lead was tried. By distillation no volatile oil or acid was obtained.

Whatever medicinal virtues the plant may possess must reside either in the yellow resin or in the extractive; the former is soluble in alcohol and the latter in water; in the watery decoction some of the resin is diffused, but the greater portion of the resin is not extracted by the water. The therapeutic position of the plant, judged from analysis, might be among the aromatic bitters.

Washington, D. C., May 27, 1871.

ON SOLUTIONS OF ALKALOIDS IN MEDICATED WATERS.

BY THE EDITOR.

In a letter written shortly after his return home from the Philadelphia College of Pharmacy, where he graduated in March last, the late John D. Owen communicated to the editor an observation which is of particular interest to the medical and pharmacial professions. At our request, he commenced some experiments, which remained unfinished when he was prostrated by sickness. Since his demise we have verified his observation by experiment, and now communicate it to the readers of this journal, together with some observations on the subject.

Mr. Owen had dispensed a prescription ordering sulphate of morphia to be dissolved in peppermint water; the latter had been made, according to the Pharmacopœia, by triturating the oil with carbonate of magnesia and water. When the vial was brought back for renewal

Mr. Owen observed that the sides were covered with crystals, which he collected, and proved to be morphia.

The process of the Pharmacopœia alluded to, yields, in all cases, a medicated water possessing an alkaline reaction, which is shown by its effect upon a diluted tincture of turmeric, the latter turning reddish brown. If chloride of ammonium and ammonia water are added to such a medicated water, any soluble phosphate will in a short time produce a dense cloudiness and finally a precipitate. It is unnecessary to enter into the causes of the solubility of magnesia under these circumstances; the fact is a plain one, and the possibility of dangerous effects very obvious. Neutral salts of insoluble (in water) alkaloids may be dissolved in such medicated waters, but the alkaloids will be gradually precipitated in a form in which they cannot be uniformly diffused in the liquid even by agitation; hence the possibility, if the separated alkaloid does not firmly adhere to the vial, that the last dose may contain an excessive amount of a poisonous article; while, in case it should adhere with sufficient firmness, the result might be, at least, disappointment in the effects, if nothing worse, in consequence of insufficient medication.

Heretofore we have advocated the preparation of medicated waters by distillation from the drugs, solely for the reason of their superior flavor and taste. The facts pointed out above furnish a by far stronger argument. As long, however, as the Pharmacopœia allows the preparation of these waters from the volatile oils by the aid of magnesia, it would appear to be the plain duty of the pharmacist to neutralize or faintly acidulate these waters in all cases where salts of poisonous alkaloids are to be dissolved therein.

EXAMINATION OF SUBNITRATE OF BISMUTH.

BY JOHN D. OWEN, of Louisville, Ky.

(From the Author's Inaugural Essay).

Being requested to make an examination of the subnitrate of bismuth of commerce, I procured four samples, one from each of the following firms: Messrs. Powers & Weightman, Rosengarten & Sons, A. W. Wright & Co. and Kurlbaum & Co. Taking two grammes of each sample, with each of which I mixed two grammes pure carbonate of soda and a small quantity of distilled water, I then boiled them for a short time which caused a mutual decomposition, forming carbonate of bis-

muth, which remained in the form of a precipitate, and nitrate and chloride of sodium, which went into solution with the excess of carbonate of soda. The carbonate of bismuth being collected on a filter, washed and dried, was reduced by ignition to the oxide of bismuth and weighed as such.

To the filtrate containing the carbonate and nitrate of soda and chloride of sodium, I added a volumetric solution of sulphuric acid to neutralize the carbonate of soda. 38.75 c.c. volumetric solution of sulphuric acid neutralized two grammes of carbonate of soda, therefore 38.75 c.c. acid solution contains 1.5094 grammes of anhydrous sulphuric acid. The difference then between the amount used and the amount required to neutralize two grammes of carbonate of soda is equal to the nitric acid and chlorine in combination with the soda.

I then dissolved two grammes of each sample of subnitrate of bismuth in hot dilute nitric acid. Three of the samples left residues of chloride of silver, which I reduced by a solution of caustic soda, and glucose to metallic silver, and after burning and careful washing with dilute acetic acid to remove the last traces of soda, and burning again I weighed it as metallic silver. To the filtrates containing the solutions of nitrate of bismuth I added a solution of nitrate of silver, which gave a precipitate in two of the samples, in the other two only a slight turbidity. The precipitates I reduced to metallic silver as already described, ignited, weighed and calculated the amount of chlorine from that of the silver. I then tested the samples in Marsh's apparatus, one of them gave metallic spots, which I tested with a solution of hypochlorite of soda, and they proved to be *Arsenic* by their instantaneous disappearance when touched by this reagent.

Afterwards I made an analysis of each sample in the following manner, by subjecting the four samples at the same time to an air bath of 120° C. for two and a half hours, and then weighed, the loss being the amount of water, then ignited and weighed again, the loss this time being the nitric acid, with a certain amount of water which could not be driven off at 120°C., said water being determined by deducting the amount of nitric acid, etc., found volumetrically. The amount left after driving off the nitric acid and water, was the oxide of bismuth and silver. The following tables show the results of my labors, which were done at the laboratory of Dr. F. A. Genth, to whom I am indebted for the advice given and the interest taken in my labors.

[We omit the analytical details and calculations and condense the author's results into the following tables:]

100 parts of the four samples yielded

	Powers & Weightman.	Rosengarten & Sons.	A. W. Wright, & Co.	Kurlbaum & Co.
BiO ₃	80.79	81.67	81.08	81.73
AgCl	0.37	—	trace	trace
As	—	—	trace	—
Cl	0.18	trace	trace	0.78
HO } at 120° 2.30 {	4.31	1.80 } 3.95	2.02 } 5.30	1.54 } 4.09
by ignition 2.01 {		2.75 }	3.28 }	2.55 }
NO ₅	14.85	14.45	13.77	14.27

The composition of these samples is as follows:

BiO ₃ NO ₅	79.20	77.07	73.44	76.90
BiO ₃ , 3HO	18.33	21.24	23.88	15.48
BiCl ₃ + 2(HO, BiO ₃)	1.36	trace	trace	5.94
AgCl	0.37	—	trace	trace
Arsenic	—	—	trace	—
Water uncombined (difference)	0.74	1.69	2.68	1.68
	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>

PLEIS' FIT POWDERS.

BY A. W. MILLER, M. D.

This nostrum is advertised extensively in this city and vicinity as an infallible remedy for epilepsy, popularly termed "fits." The circulars issued by the proprietor distinctly claim that these powders have never failed when used according to directions. Presuming this assertion to be correct, they would form one of the most valuable additions to our materia medica, as epilepsy is well known to be one of the most intractable of all chronic diseases, baffling in but too many instances the most skillful practitioners.

In order to determine, if possible, in what respect this article differs from the remedies usually resorted to by the profession, a box of the preparation was examined. It contained 24 powders of odd sizes, folded in a slovenly manner, and presenting a general untidy appearance. The division of the material had evidently not been very carefully managed, as scarcely any two of the papers contained the same amount. The weight of the separate powders was found to vary

between 14 and 31 grains, showing a difference of over 120 per cent. between these extremes.

The peculiar odor of gentian was very prominent, and none other could be recognized. The taste was decidedly saline, and slightly bitter, producing a cooling impression upon the tongue, indicative of ready solubility. A little of the powder introduced into an alcohol flame, gave rise to the peculiar violet color characterizing potassium salts; it was free from the slightest yellowish tinge, indicating the absence of all sodium compounds.

Three of the powders of medium weight were agitated with an ounce of water; the mixture was filtered and the residue washed with water. The solution was partially evaporated and set aside to crystallize. After several days a crop of colorless cubical crystals was obtained, weighing, together with the adhering extractive matter, 52 grains. The crystals were to all appearances insoluble in alcohol, permanent in the air, and very freely soluble in water. Tartaric acid added to the solution yielded after a little while crystals of bitartrate of potassa, confirming the existence of potassium. Another portion of the solution mixed with chlorine water, and then shaken with ether, gave unmistakable evidence of the presence of bromine by the strong reddish tint imparted to the superstratum of ether. A third portion, treated with sulphuric acid and binoxide of manganese, eliminated bromine, perceptible by its colored vapor and irritating odor. Nitrate of silver added to a fourth portion of the solution gave a slightly yellowish precipitate, which was insoluble in nitric acid but soluble in ammonia.

From these various experiments it was concluded that the crystals consisted exclusively of bromide of potassium, contaminated with a little extractive matter from the gentian. Hydrate of chloral was excluded on account of the absence of its characteristic odor. As a portion of the powder, when heated with solution of caustic soda, gave off no ammoniacal odor, bromide of ammonium was likewise excluded. An examination of the powder with a microscope of low power did not reveal crystals of any other shape than the cubes and quadrangular prisms of bromide of potassium.

The residue on the filter, when evaporated to dryness, weighed 7 grains. As the extractive matter of gentian is freely soluble in cold water, the weight of this residue represented a considerably smaller quantity than that which the powders had originally contained. It

was deemed probable, therefore, that each powder was intended to contain about 15 grains of bromide of potassium, and about 5 grains of powdered gentian root. There is little doubt that the latter is added mainly for the purpose of altering the appearance of the coarsely powdered bromide of potassium.

Although there is perhaps nothing strictly injurious in this patent medicine, if we except the annoying skin disease occasionally following the continued use of bromide of potassium, it still remains an anomalous fact that the same remedy, in the effects of which the highest medical authorities are so often disappointed, is thus so boastingly put forth as a never-failing specific.

CARBOLIC ACID IN POWDER FORM.

BY CHAS. O. CURTMAN, M. D., Prof. of Chemistry Mo. Med. College.

The well-deserved favor in which carbolic acid is held by the profession has resulted in a wide-spread application of its different forms, as disinfectants, among the public. By passing into such general use, however, some difficulties have manifested themselves, and some accidents have occurred, owing to the inexperience of many who now handle this energetic preparation.

The most common form in which it has heretofore been supplied to the public for purposes of disinfection is that of a concentrated solution of the crude acid, containing a large percentage of cresylic acid, some rosolic acid, and more or less of pyrogenous oils. This preparation is quite corrosive, even when moderately diluted, and cases are not unfrequent in which deep ulcerations of the integuments, and even acute poisoning, have resulted from its careless employment.

In its application to the destruction of the larger parasites it requires considerable concentration, so that it will not destroy such animals as aphides and plant-lice without injuring, more or less, the plants themselves which those pests of the garden infest.

Some time ago the Messrs. G. Mallinckrodt & Co., chemical manufacturers of this city, supplied to me a preparation in which a dry argillaceous powder is used as a diluent of the acid instead of water, and the experiments made with this and, for comparison, with the aqueous solution, have satisfied me that this mode of preparing the carbolic acid for general use in dry form has some very decided advantages over the common solutions.

The powder used by me is quite dry, has very little coherence, is light and porous, little inclined to form lumps by exposure to moisture, and contains about 20 per cent. of the mixed tar acids, which gradually and slowly volatilize when the powder is exposed to the atmosphere.

That the corrosive qualities of the acid are considerably modified by this mode of dilution, and therefore an objectionable feature of the common solution obviated, without sacrificing any valuable property, I convinced myself by the following experiments:

A number of shrubs and flowers in my garden had become infested by swarms of various parasites, green and black lice, aphides of larger kind, &c. To destroy them, or at least drive them away, I used a spray syringe charged with water containing crude carbolic acid in various amounts. I began with $\frac{1}{4}$ per cent., and gradually increased the quantity. A rose-bush was first selected, on which thousands of green insects were preying.

The weaker applications proved entirely unsuccessful, until above $\frac{1}{4}$ per cent. of acid were used, when some of the animals died, but at the same time the rose-bush began to wither, and after a few weeks of sickly existence perished.

Similar results were obtained with a number of other plants subjected to a like treatment, some of them resisting larger amounts of acid, but all being materially injured or killed before all the animals were destroyed.

The powder containing about 20 per cent. of the acid was next sprinkled slightly over different plants. On the first day neither plants nor insects appeared to be affected. After three days but very few parasites remained on the plants, while no damage whatever had resulted to vegetable life, the plants remaining quite healthy and continuing to grow thriftily while under observation for some time after.

A continuous and regular exhalation of the acid vapor from the finely divided surface of the powder appears to be preferable to the more irregular diffusion resulting from evaporation of an aqueous solution, and, so far as safety in the hands of the inexperienced is concerned, I do not hesitate to give the powder form a decided preference over that of solution in liquids.

It would be well if during the revision of the U. S. Pharmacopœia now going on, the Committee would give some attention to this mode of dispensing the acid for general use, and would incorporate a pre-

paration of carbolic acid diluted with an argillaceous powder among the articles of our national standard.

Clay appears preferable to other substances for this purpose, on account of entering into no combination with the acid, but serving simply as a neutral, inert, mechanical diluent.

ON ELIXIRS CONTAINING IRON.

BY W. W. SEAY.

A considerable discussion has been carried on regarding the propriety of furnishing the various elixirs for the use of the profession and the public. My own experience has suggested a decided impression in their favor, and, while they can never take the place of similar officinal preparations, they can be made, with proper care, fully equal in medicinal effect, and certainly more agreeable to the taste. Whilst deprecating any fundamental change of our old time-honored and tried remedies, I think many of them could be improved in flavor and appearance, and do our art no discredit. I have known patients to absolutely refuse to take many of our tonics long before their use should have been discontinued, simply on the ground of their nauseous bitter taste. These elixirs are elegant in appearance, and have a decidedly pleasant flavor, which I think is a great consideration where medicines have to be taken for a length of time. As furnished us by large manufacturing firms, my observations are opposed to their usefulness, since in nearly every instance they lack the necessary strength. Certain salts of iron can be added to almost any of our tinctures (modified somewhat in preparation) without precipitation, and prove as useful as before their addition. I propose furnishing a few recipes, the formulæ of which I have originated and found useful. I do not claim any great scientific achievement for them, but I do think they are preferable to any I have yet seen in use. They retain their *tannic acid and natural combinations apparently unchanged, at all events, without any great chemical disturbance.* It will be observed that alcohol of officinal dilute strength is taken, and the drugs exhausted by it, and *then* sugar is added, which *increases the bulk* without interfering with its *solvent action.* The general full dose being in most cases about one-half fluidounce, the spirituous strength will amount to only one and one-third fluidrachms of officinal alcohol,

which quantity cannot be considered very objectionable. Wines or brandies can be substituted for a portion of alcohol, if deemed advisable, account being taken of difference of alcoholic strength, the object being to approach as nearly as possible to the menstruum ordered for similar officinal tinctures. Like all tinctures, they are directed to be taken in a little water. The subjoined preparation of Elixir Cinchonæ et Ferri Hypophosphitis, I can specially recommend as an elegant and beautiful one, having taken it myself for some time past, where phosphorus was indicated. About its permanence beyond a few weeks I cannot vouch, as I have not laid by any samples for a great length of time to test it. Hypophosphorous acid has a great affinity for oxygen, and how far the sugar will protect it in the presence of organic matter I am unable to state. I have kept it on hand without change for about two months. The solutions can be kept separately and mixed as wanted, and an elegant preparation insured.

Elixir Cinchonæ et Ferri Hypophosphitis.

Elixir Cinchonæ,	Oj,
Syr. Ferri Hypophosphitis,	.	.	.	.	f℥ij,
Alcoholis Fortior.,	.	.	.	.	f℥ss,
Ac. Hypophosphorosi,	.	.	.	.	f℥iv.

Mix the syrup, acid and alcohol together, and then add to elixir.

The Elixir Cinchonæ designated is that published by me in the June number Amer. Journal of Pharmacy, 1871. The Syr. Hypophosphite Iron is that of W. S. Thompson, and the Hypophosphorous Acid that of Parrish, in Parrish's excellent "Treatise on Pharmacy."

The dose for an adult would be about one-half fluidounce, containing thirteen grains red Peruvian bark, nearly one-half fluidrachm of the Syrup of Ferrous Hypophosphite, six and one-half minims of 10 per cent. hypophosphorous acid.

Elixir Gentianæ et Ferri Chloridi.

Gentian, in coarse powder,	.	two troyounces,
Recent Orange Peel, bruised,	.	two "
Cardamom Seed, powdered,	.	one-half troyounce,
Alcohol Dil.,	q. s.	

Percolate s. a. until twenty-one fluidounces have been obtained. To this add and dissolve

Sacch. Alb. Pulv, . . .	thirty-one av. ounces,
Acid. Muriat. Pur., . .	f3ij,
Sol. Ferri Chloridi (FeCl), .	f3iv.

The strength of the elixir is about the same as officinal tinctura gentianæ co.; it contains the equivalent of ten drops officinal tr. ferri chloridi to each fluidounce.

Any elixir that may be desired with chloride of iron can be made in the same way, substituting other drugs instead of gentian. I will furnish my recipes with other salts of iron, for future numbers of the Journal, as I can find the time. I think if druggists will give these recipes a fair trial, they will find the resulting elixirs will give better results than any that have heretofore been published.

New York, June 6th, 1871.

SODA MINT.

BY HENRY A. BORELL.

Editor Amer. Jour. Pharmacy:

The very popular "Soda Mint," so much employed as an antacid and carminative for *over-fed* infants and dyspeptics, was originally a favorite prescription of Dr. Geo. Norris, of this city. His formula was the following:

R. Sodæ Bicarb.,	3ss,
Spt. Ammon. Aromat., . . .	5j,
Aquæ Menthæ Piperitæ, . . .	Oj.

M.

Dose, from a dessertspoonful to a tablespoonful for adults; from half to one teaspoonful for infants.

There is evidently an error in the formula on page 247 of this journal.*

NOTE ON GORDON'S GLYCERIN.

BY JOSEPH P. REMINGTON, Philadelphia, Pa.

Having had occasion to investigate more fully the quality of glycerin as it exists in this market, for the purpose of reporting further

* The editor requests the readers to correct the error on page 247. Aq. Menth. vir. f3ij, should be f3xij.

on the subject at the next meeting of the American Pharmaceutical Association, the writer was led to seek for additional samples.

And, at the instigation of a member in Cincinnati, two samples taken from the common market were obtained, bearing the name and stamp of Wm. J. M. Gordon. It was ascertained that these were made very recently, and had but lately arrived from Cincinnati.

They were subjected to an examination, conducted in the same manner and with the same reagents used in the investigation reported at the last meeting in Baltimore, in 1870, and published in the Proceedings of the Association, Vol. 18, page 187, and republished in this journal, March number, 1871, page 119.

It will be seen by a perusal of the table below that there is a great difference in the quality of the samples of glycerin taken now and then:

	For Strength, Sp. Gr.	Color.	Odor when warmed.	Nit. Silver.	Sulphuric Acid.	For Sulphate of Lime.
Gordon's Pure Inodorous, tested 1871.....	1.253	None.	None.	No precipitate.	Slightly discolored.	No precipitate.
Gordon's Pure Concentrated, tested '71	1.249	Not quite colorless.	Slight.	Rose coloration.	Slightly discolored.	No precipitate.
Gordon's Pure, tested 1870.....	1.240	Yellowish.	Fatty.	Heavy white precipitate.	Discolored.	No precipitate.

	For Lime Salts, Ox-Ammon.	For Iron, Ferrocyanide Pot-assium.	For Metals, Hydrosulphate Ammonia.	For Sulphates, Chlor-Barium.	For Ethyl-Butyrate.	For Glucose.
Gordon's Pure Inodorous, tested 1871.....	No precipitate.	No precipitate.	No precipitate.	No precipitate.	Slight odor.	None.
Gordon's Pure Concentrated, tested '71	No precipitate.	No precipitate.	No precipitate.	No precipitate.	Slight odor.	None.
Gordon's Pure, tested 1870.....	Slight precipitate.	No precipitate.	No precipitate.	Slight precipitate.	Strong odor.	None.

In the course of correspondence with the manufacturer, the difference in the quality of the samples tested was accounted for by the fact of my obtaining a sample which had been made probably several years ago, and that recently there have been great improvements made in the manufacture of glycerin, and he was turning out now a glycerin that would compare more favorably.

It is hardly necessary for me to say that the results have verified his supposition, and it is but right that he should have the benefit of the examination, whatever that may be.

It is a source of pleasure to present the results above, and additional testimony is thus given to show that we need not seek foreign markets for fine glycerin, but it is also a source of regret to know that

the manufacturer has now out in the market a glycerin which does not do him justice, and is really not fit for internal administration. It would certainly serve his interests better, were he able, to recall it, but as that is impracticable every druggist will have to see that the next package of Gordon's glycerin that he buys is of recent manufacture.

ELIXIR CINCHONÆ ET FERRI—CARBOLIC CERATE.

BY CHAS. A. BEHME.

Ferrated Elixir of Cinchona. The revival of this topic in the *Journal* has led me to publish the following formula, which has been used with success for some years :

R	Ol. Aurantii	fʒiv
	Ol. Cinnam.	℥x
	Ol. Carvi	℥xx
	Tinct. Zingiberis	fʒj
	Tinct. Cardam.	fʒj
	Magnesiae Carbon.	ʒj
	Sacchari	lbs. ij Avd.
	Ferri Pyrosphos.	grs. 1536
	Quiniæ Sulph.	grs. 53
	Cinchonæ Sulph.	grs. 54

Mix the oils and tinct. of ginger, triturate with the magnesiae carb., add the tinct. cardam., triturate again and gradually add six pints of a mixture consisting of alcohol one pint, water four pints ; stir together a few minutes and filter. Take one pint of this liquid, mix it with the quiniæ and cinchonæ sulph. and add a few drops of sulphuric acid, sufficient to dissolve the alkaloids. Return this solution to the rest of the liquid, add the sugar and pyrophosphate iron and agitate occasionally until they are dissolved ; to complete, add sufficient of the alcohol and water mixture to make up to one gallon.

The green color may be corrected, if desired, by the addition of caramel, and some of the bitter taste covered by adding one ounce fl. ext. liquorice to each gallon. Prepared as above, the elixir contains twelve grains of pyrophosphate iron and the equivalent of twenty-four grains of cinchona bark (supposing it to contain three per cent. of alkaloids) in each fluid ounce.

This formula will be convenient for many pharmacists who do not

keep quinia or cinchonia in stock, as the sulphates of these alkaloids are used direct, thus saving the trouble of precipitating them. I have prepared samples of elixir from both sulphates and citrates of quinia and cinchonia, and find that one keeps as well as the other, and the testimony of physicians who have used both goes to show that they are equally efficacious.

My opinion is with Professor Maisch, that it is just as well to prepare elixir cinchonæ et ferri from the isolated alkaloids (or their salts) as from the bark, but of course each pharmacist can follow his own convictions in the matter, as the compound is not officinal.

Carbolic Cerate.

The following will be found to be an excellent formula for this preparation :

R.	Adipis,	.	.	.	.	.	3̄x,
	Ceræ Albæ,	.	.	.	.	.	3̄v,
	Terebinth. Can.,	.	.	.	.	.	3̄j,
	Acid. Carbol.,	.	.	.	.	.	3̄j.

Melt the lard and wax together, add the balsam fir, and when it begins to cool stir in the carbolic acid.

The addition of balsam fir to this preparation corrects the disagreeable odor of the acid, and renders it slightly adhesive, which is quite desirable when the compound is used as a dressing for burns, old sores, &c.

Battle Creek, Michigan, June 10, 1871.

ETHEREAL SOLUTION OF QUINIA.

By CHARLES RICE.

An ethereal solution of quinia has for several years been quite frequently prescribed by prominent physicians in this city and elsewhere, and I have been often requested, especially by physicians in the country, to furnish them a formula for its preparation. Although the different steps of the preparation are simple enough, yet I have repeatedly been informed of failures in the hands of others. In order to furnish to those, who are not practical pharmacutists or chemists, and also to those who have met with ill success, a formula for its

preparation, I shall give below the full detail, which will enable any one to prepare it for himself.

The object of the solution is to administer the alkaloid subcutaneously, in which case a much smaller dose is required, and a more speedy action is obtained than when administered internally. The idea of the subcutaneous use of quinia naturally suggested itself to practitioners from the previous similar administration of other alkaloids, especially morphine sulphas; but the neutral sulphate of quinia not being soluble to any useful extent in water, and the use of an acid solution being accompanied by pain and often severe inflammation, it was necessary to employ the pure alkaloid. And of all the different solvents, ether seems to have found the most favor.

By the way, I would remark that the practice of some apothecaries, of using dilute sulphuric acid in their solution of morphine sulphas, especially Magendie's, is highly reprehensible and denounced by physicians, on account of the pain and inflammation following its hypodermic use; water being all that is necessary.

Most authorities state that 1 part of quinia requires 60 parts of ether for its solution. This statement is quite correct, as far as the solution of the *dry* alkaloid is concerned, and it is by no means easy to prepare a solution even of that strength. But we may readily dissolve the quinia in ether, either at the moment of its precipitation from one of its salts, or at all events while yet in a moist state. The ethereal solution thus obtained may be concentrated to such a strength, that 2 minims of it will contain 1 grain (and even more) of quinia, although in this state the solution is too thick for use, and too liable to solidify. Hence quinia (recently precipitated, and yet moist) may be said to be soluble in ether in all proportions, as has been stated already by Bussy and Guibourt (*Journal de Pharmacie et Chimie*,) vol. 22, 1852, p. 413, 414.

The strength of the ethereal solution, as employed by Dr. B. W. McCready and other practitioners, is such that 5 minims contain 1 grain of quinia.

Preparation. Take 364 grains of sulphate of quinia, which has been (previously to weighing) deprived of its water by drying it at 212° F., mix it with 1 pint of water and add to it just sufficient dilute sulphuric acid to dissolve it. Filter if necessary, and wash the filter carefully. Introduce the solution into a 4 pint bottle and add sufficient water to make it measure 32 oz. The next step is to precipi-

tate the quinia, and in order to avoid too great an excess of aqua ammonia, it is best to make a preliminary trial of the dilute sulphuric acid and aq. ammonia to be employed in the process. Introduce into a graduate 1 fl. oz. of the dilute acid, add some strips of litmus paper, and, while stirring, drop in very gradually from another graduate (or burette) aqua ammonia, until the litmus paper turns blue. The amount of aq. ammonia used is the quantity necessary to saturate 1 fl. oz. of the acid. Now pour upon the solution in the 4 pint bottle a little more than *double* the amount of aqua ammonia, corresponding to the amount of dil. sulphuric acid used, in order to precipitate the quinia; for it is not only necessary to neutralize the amount of acid added, but also the other equivalent already contained in the original sulphate of quinia. Immerse the bottle in ice-cold water to absorb the heat generated during precipitation. Have a sound and tightly fitting cork ready, through which are passed two narrow glass tubes, one of them nearly reaching to the bottom of the 4 pint bottle, the other just penetrating the cork, and both cut off at an even height on the upper side. When the bottle has been sufficiently cooled, pour into it 15 fl. oz. of stronger ether and shake; the quinia will be dissolved, and the contents of the bottle will arrange themselves in two transparent layers, the lower one, an aqueous solution of sulphate of ammonia (holding a little ether, and also a trace of quinia in solution) and the upper one, an ethereal solution of quinia. Introduce the cork into the mouth of the bottle, keeping the finger on the orifices of the glass tubes, and invert the bottle. Hold it for a short time in a somewhat inclined position, to allow the watery solution adhering to the sides and bottom to drain down into the lower layer; then remove the finger and allow the lower layer to flow off into a vessel placed below. As soon as the line of demarkation approaches the cork, allow the liquid to pass only very gradually, and as soon as all the aqueous solution has run off, receive the ethereal solution in a 16 oz. graduate. Rinse the bottle with $\frac{1}{2}$ fl. oz. of ether and add it to the former. Allow the ethereal solution to evaporate in a warm place (110° — 120° F.) until reduced to $2\frac{1}{2}$ fl. oz. Remove it, cover it well, to prevent further evaporation, and cool it to the temperature of 60° F. Then measure off into a weighed graduated tube (or minim graduate) 5 minims and evaporate to dryness. Should there be no scales sufficiently accurate to indicate fractions of a grain, use an aliquot multiple of 5 minims, f. i. 50 minims, in which case, of course, you will have to divide after-

wards again by 10. There will probably be found more than 1 grain of quinia contained in the 5 minims; hence it is now only necessary to dilute it with ether to the required strength. Let us suppose that the residue of 5 minims weighed $1\frac{1}{4}$ grains, and that our remaining solution measures $2\frac{1}{2}$ fl. oz.; now in order to make the solution contain 1 grain in every 5 minims, we have the proportion:

1 (grain req.) : $1\frac{1}{4}$ (grains found) = $2\frac{1}{2}$ (fl. oz.) : x (fl. oz. req.)
whence $x = 3\frac{1}{8}$ (fl. oz.); hence we have to dilute the solution with stronger ether so as to measure $3\frac{1}{8}$ fl. oz.

The original amount of sulphate of quinia (364 grs.) employed, contains 40 grs. of sulphuric acid, and 324 grs. of quinia;* now if all the latter were to remain in solution, we should obtain (at the rate of 1 grain in 5 minims) 1620 minims or 3 oz. 180 min.; but during the evaporation a portion of the quinia has attached itself to the sides of the vessels; and this should not be scraped into the solution, since it will not only fail to redissolve, but will generally produce a further separation of quinia.

It will sometimes occur, that on pouring the ether upon the precipitated quinia in the bottle, the latter absolutely (or nearly so) refuses to dissolve; this is owing to the presence of undecomposed solution of bi-sulphate of quinia, which seems to prevent the solvent action of ether. By adding a little more ammonia and shaking, the solution will at once take place. But too much ammonia must be avoided, since this gives a tendency to the ethereal solution to deposit the quinia in a short time; at least such is my experience.

The quinia adhering to the sides of the evaporating vessel, may be dissolved off by the aid of a little dil. sulphuric acid, and kept in solution for future use; its amount may be determined by drying and weighing the graduate together with the crust of quinia, and reweighing it after its removal. Supposing the former weight is 1020 grains, the latter 1000 grains, the difference will be the quinia, 20 grs. Now as

*The author's calculations are slightly incorrect; crystallized sulphate of quinia must be heated to between 110 and 120° C. (230 and 248° F.) to lose all its water of crystallization, when it still retains 1HO of constitution, its formula being $C_{40}H_{24}N_2O_4, HO, SO_3$ and its equivalent weight 373, containing 324 dry quinia and 49HO, SO_3 . See Am. Journ. Ph., 1855, p. 243. 364 grains sulphate of quinia, deprived of all its water of crystallization, contain, therefore, 316 grains dry quinia.—EDITOR AM. JOURN. PH.

$$324 \text{ (equiv. of quin.)} : 364 \text{ (equiv. of sulph. qu.)} = 20 : x$$
$$x = 22\frac{38}{81} \text{ or about } 22\frac{1}{2} \text{ grains of sulphate of quinia.}$$

The ethereal solution prepared according to the above directions must be kept in well stoppered bottles, and should not be long exposed to light. I have kept some samples unaltered for over one year.

Bellevue Hospital, June 12, 1871.

NOTE ON SOME PILL MASSES.

By JOHN M. MAISCH.

A combination of protosulphate of iron and carbonate of potassa in the form of pills or boluses is used to some extent in Europe in cases of chlorosis, amenorrhœa, &c. The combination is similar to that of Griffith's iron mixture, and of *pilulæ ferri compositæ*, except that the latter preparation contains carbonate of soda, a nondeliquescent salt, and myrrh, to which protective properties for the proto-carbonate of iron are ascribed. To avoid the hygroscopic tendency of the carbonate of potassa, Guibourt had suggested its substitution by the bicarbonate; but the difficulty of forming a proper pill mass is thereby not obviated. To accomplish this result, absorbent vegetable powders like *pulv. althææ*, *rad. glycyrrh.*, &c., have been recommended in connection with gum Arabic or tragacanth. The latter alone may be used with advantage in the form of a thick mucilage. In a communication to the *Pharmac. Zeitung*, it is suggested to substitute for the iron sulphate the exsiccated salt in an equivalent quantity, and after triturating it with the potassa salt to beat it, with honey, into a mass of very good consistence. The slower solubility of the exsiccated iron salt must necessarily render such pills slower in their effects, but probably not sufficiently so to be objectionable. I have obtained excellent results by manipulating as follows: Sulphate of iron, granulated by precipitation of its solution with alcohol, is rubbed together with the carbonate of potassa; the mixture becomes soft and changes in color, in consequence of the formation of carbonate of iron and the liberation of water of crystallization. Powdered tragacanth is now added, and by beating with a few drops of syrup a very good pill mass is obtained. The proportions may be seen from the following:

R. Ferri sulphat. pur., Potassæ carbonat. pur., *aa* ʒij; Pulv. tragacanthæ, ʒss; Syrupi simplic, gtt. v—vi. M. ft. pilul. No. 60.

Sulphate of iron always gives more or less trouble in the formation of pill masses with the usual excipients. In many cases a little glycerin will probably be found superior to any other, as is the case with the following prescription, which will give a crumby, unsatisfactory mass with syrup, honey, and mucilage, but is unobjectionable when glycerin is employed :

R. Ext. nucis vom., gr. x; Ferri sulphat., gr. xx; Quiniæ sulphat., ʒij; Glycerin, gtt. v—vi. M. ft. pilul., No. 20.

It is remarkable what a large amount of the other excipients the above mixture will take up, while five or six drops of glycerin will have a by far better result.

GLEANINGS FROM THE GERMAN JOURNALS.

By J. M. MAISCH.

Curcumin has been obtained by F. W. Daube in deep yellow crystals, of a pearly to diamond-like lustre. Turmeric is completely exhausted with hot water and, after drying, treated with boiling benzole, which, on cooling, separates crude curcumin. This is dissolved in cold alcohol, the filtrate precipitated by acetate of lead, and the liberated acetic acid almost neutralized by subacetate of lead; the precipitate is decomposed under water by a current of sulphuretted hydrogen, the sulphide of lead exhausted with boiling alcohol, and the alcoholic solution slowly evaporated. Curcumin is readily soluble in alcohol and ether, but requires 2000 parts of benzole for solution, which menstruum does not dissolve the resins, from which curcumin is otherwise difficult to liberate.—*Zeitschr. f. Chem. Jan. 21, 1871*, from *Ber. d. d. Chem. Gesellsch. Berlin, 1870, 609*.

Opium Wax.—The glaucous coating of the ripening poppy capsule is wax, which, being scraped off with the hardening milk juice, is likewise a constituent of opium. O. Hesse has prepared it from the residue left on exhausting opium with water. The mass was first treated with some hydrate of lime, and then exhausted with boiling alcohol. The white crystals, after having been recrystallized, are treated with boiling chloroform, which leaves colorless crystals probably related to lactucerin and hyoscerin. From the chloroform solu-

tion the pure wax is obtained as cerotate and palmitate of ceryl, by fractional crystallization.—*Ibid.*, from *Ibid.* p. 637.

To Prevent Mucilage from Mouldiness.—Instead of carbolic acid, corrosive sublimate, &c., the Polyt. Notizbl. recommends to add a minute quantity of sulphate of quinia, and suggests that it might also be useful for ink.—*Ph. Cent. Halle*, 1871, 182.

Subnitrate of Bismuth.—Dr. Biermann has found some of the commercial articles to contain notable quantities of ammonia.—*Archiv d. Ph.* 1871, April 6.

Inuloid is, according to O. Popp, contained in the tubers of dahlia and helianthus at a time when the deposition of inulin in the cells has but just commenced. It is obtained from the juice by precipitating gum, coloring matter, &c., by subacetate of lead. The filtrate, after standing for several hours, again produces a precipitate, more of which may be obtained on concentrating the liquid. The white amorphous substance shows nearly the same physical and chemical behavior as inulin, but differs in being lighter and more soluble in water. Its ultimate composition being that of inulin, the author regards it as a soluble modification of this principle.—*Archiv d. Ph.* 1871, April, 40—46.

Impure Black Sulphuret of Antimony.—Dr. R. Mirus calls attention to the commercial powder of black antimony, which always contains powdered quartz, sometimes 30 to 40 per cent. The latter is usually not removed by smelting the ore previous to powdering it.—*Ibid.*, 4—6.

Preservation of Ergot.—A. Hirschberg recommends to select unbroken grains only, and, after drying them carefully at a moderate heat, to preserve them in small well-sealed vessels, previously dried. When desirable to keep on hand some bruised and powdered ergot, the same precautions are recommended. The absorption of moisture and contact with the air induce changes, and the slightest odor of propylamin is a sure sign that decomposition has commenced.—*Ibid.*, 88, 89.

FORMULARY OF ELIXIRS AND OTHER PREPARATIONS OF THE NEWARK PHARMACEUTICAL ASSOCIATION.

WINE OF BEEF AND IRON.

R.

Extracti Carnis (Liebig's)..... 1 oz.
Ferri Citrat.....96 grs.
Vini Xerici..... 16 oz.
Syrupi..... 2 oz.
Pimentæ (contus)..... $\frac{1}{2}$ dr.
Aquæ.... q. s. ft. 24 oz.

Dissolve the Extract Beef in 4 oz of water and add the Allspice; after standing 10 hours add the Wine and Syrup, then the Citrate of Iron previously dissolved in 2 oz water; filter.

Each fluidounce contains: Fresh Beef, 1 oz; Citrate Iron, 4 grs. Dose —one tablespoonful.

NUTRITIVE WINE.

Prepared same as above, omitting the Citrate of Iron.

ELIXIR CALISAYÆ.

R.

Cort. Cinchonæ flav..... $\frac{1}{2}$ oz.
" " (Calisaya)..... $\frac{1}{2}$ oz.
" Aurantii..... $\frac{1}{2}$ oz.
Sem. Coriand..... 2 drs.
Cocci Cacti..... 1 dr.
Spts. Vini Deod.12 oz.
Aquæ.....10 oz.
Glycerinæ 5 oz.
Syrupi..... 5 oz.

Reduce the Barks &c. to a moderately fine powder, and pack firmly in a percolator; mix the deodorized Spts. water, Glycerin and Syrup, adding enough water to make two pints of percolate, to which add 20 grains powdered Tartaric Acid, and after standing 24 hours, filter.

Each fluidounce contains 16 grains Cinchona Bark.

ELIXIR PYROPHOS. IRON AND QUINIA.

R.

Ferri Pyrophos160 grs.
Quiniæ Sulph..... 10 grs.
Spts. Vini Deod..... 2 $\frac{1}{2}$ oz.

Syrupi 3 oz.
Aquæ 9 $\frac{1}{2}$ oz.
" Flor. Auranti..... 5 oz.
Acid. Sulph. dil... q. s.

Dissolve the Pyrophosphate Iron in the water and add the Syrup, then dissolve the Quinine in the Orange Flower Water with as little diluted Sulph. Acid as possible, and gradually mix them; filter.

Each fluidounce contains: Pyrophos. Iron, 8 grains; Sulph. Quinia, $\frac{1}{2}$ grain.

ELIXIR QUINIA, IRON AND BISMUTH.

R.

Elix. Ferri Pyrophos. et Quiniæ, 16 oz.
Bismuthi et Ammon. Citratis, 128 grs.

Dissolve.

Each fluidounce contains: 8 grs. Pyrophos. Iron; 8 grains Citrate Bismuth; $\frac{1}{2}$ grain Quinia.

ELIXIR PYROPHOS. IRON, QUINIA AND STRYCHNIA.

R.

Elix. Ferri Pyrophos. et Quiniæ, 16 oz.
Strychniæ.. 1 gr.

Dissolve.

Each fluidounce contains: Pyrophos. Iron, 8 grains; Quinia, $\frac{1}{2}$ gr.; Strychnia, 1-16th grain.

WINE OF PEPSIN.

R.

Pepsin (Hawley's).....160 grs.
Vini Xerici.....16 oz.
Acid. Mur. Dil..... 1 dr.

Triturate the Pepsin with 4 oz. of Wine mixed with acid. Pour this on a filter and pass the balance of the Wine through it.

Each fluidounce contains Hawley's Pepsin 10 grs.

ELIXIR AROMATIC.

R.

Cort. Aurantii..... 4 drs.

Sem. Coriand..... 2 drs.
" Angelicæ..... 2½ drs.
Cocci Cacti..... 1 dr.
Spts. Vini Deod..... 12 oz.
Aquæ..... 10 oz.
Glycerinæ..... 5 oz.
Syrupi 5 oz.

Percolate 2 pints.

A pleasant vehicle for administering
nauseous remedies.

ELIXIR VALER-AMMONIA.

R.

Ammoniaë Valerianat..... 96 grs.
Fl. Ext. Vanil.,
Tr. Cardam. Comp., a a ½ oz.
" Xanthoxyl..... 2 drs.
Syr. Aurantii Cort..... 6 drs.
Aquæ 4 oz.

Dissolve the Valerianate of Ammonia in the water and add the other ingredients, previously mixed.

Two grains Val. Ammonia to each drachm.

COMP. SYRUP OF HYPOPHOSPHITES AND IRON.

R.

Hypophos. Sodæ,
" Calcis,
" Potassæ, a a 256 grs.
" Ferri 126 grs.
Aquæ 12 oz.
Sacch. Alb..... 18 oz.

Dissolve the Hypophosphites in the water in a water-bath and filter. Add sufficient water to make up for the evaporation. Add sugar and apply gentle heat to make syrup, 21 oz.

Each fluidounce contains: Hypophosphite of Soda, Lime and Potass. 12 grs. each; Hypophos. Iron 6 grs.

COMP. SYRUP OF HYPOPHOSPHITES.

Same as above, omitting the Iron.

CHEMICAL FOOD.

Parrish's Formula, omitting Cochineal and Muriatic Acid. See U. S. D.

Each teaspoonful contains 1 grain Phosphate of Iron, 2½ grains of Lime and the other Alkaline Phosphates.

ELIXIR PEPsin, BISMUTH AND STRYCHNIA.

R.

Pepsin (Hawley's)..... 256 grs.
Bismuth. Citrat..... 64 grs.
Strychniæ..... 1 gr.
Aq. Flor. Auranti..... 6 oz.
Spir. Vini Deod..... 2 oz.
Aquæ 4 oz.
Glycerinæ (pure)..... 2 oz.
Syrupi..... 2 oz.

Triturate the Pepsin with the water and Glycerin and filter; dissolve the Bismuth in 2 oz. orange flower water with a few drops of Aqua Ammoniaë. Dissolve the Strychnia with a few drops of Acetic Acid. Add the Bismuth solution to the Pepsin, then the balance of the fluids, and finally the solution of Strychnia.

Each fluidounce contains: Pepsin 16 grains; Citrate Bismuth, 4 grains; Strychnia 1-16th grains.

FERRO-PHOS. ELIXIR GENTIAN.

R.

Cort. Auranti 1 oz.
Sem. Coriand..... 1 dr.
Macidis..... 1 dr.
Rad. Gentian..... 1 oz.
Spts. Vini Deod..... 4 oz.
Aquæ..... 4 oz.
" Flor. Auranti..... 2 oz.
Syrupi..... 6 oz.
Ferri Pyrophos..... 256 grs.

Reduce the Roots, Seeds, &c. to a moderately fine powder, pack in a percolator, mix the Spirits and Waters, and percolate 10 ounces. Dissolve the Pyrophosphate of Iron; add the syrup and filter.

Each fluidounce represents 16 grs. Pyrophos. of Iron; 30 grains Gentian.

ON SYNANTHROSE, A NEW CARBOHYDRATE.

BY O. POPP.

Some years ago the author observed in the rhizome of *Helianthus tuberosus*, besides glucose, another sugar. He has since found it in the tuberous roots of other *Synanthereæ* (*compositæ*), and prepares it preferably from dahlia tubers, by precipitating the juice with subacetate of lead, removing the excess of lead with sulphuretted hydrogen, neutralizing the free acid with carbonate of magnesia, and evaporating. The residue is repeatedly treated with small quantities of alcohol until the glucose is removed, that is, until the solution ceases to have any effect upon polarized light. The undissolved portion has a brownish yellow color, and contains inulin. It is treated with small quantities of alcohol, so as to obtain a concentrated solution of the new sugar. The solution is decolorized by animal charcoal, and poured into absolute alcohol mixed with ether. The white amorphous mass is dried *in vacuo* over sulphuric acid. Synanthrose is deliquescent, readily soluble in water and dilute alcohol, insoluble in ether. Insipid in taste, and without action upon polarized light, it is decomposed by dilute acids into dextrose and lævulose, has then a sweet taste, and is now directly fermentable. It is colored black by concentrated sulphuric acid in the cold, but not turned brown by caustic potassa at ordinary temperature. Nitrate of silver produces in the cold a white flocculent precipitate; on heating, reduction takes place. Mercurous salts are reduced in the cold; the compounds with lime and baryta are soluble in water, but insoluble in alcohol. Subjected to dry distillation, carbonic acid, carbonic oxide and marshgas are obtained, besides an aqueous distillate containing acetic acid and acetone.

After repeated precipitation by alcohol and ether, and drying *in vacuo*, as above, its elementary analysis gave results corresponding with the formula $C_{12}H_{22}O_{11}$.* The baryta compound has the formula $C_{12}H_{20}BaO_{11}$. Alcoholic solutions of subacetate of lead and synanthrose produce an amorphous precipitate $= C_{12}H_{20}Pb_2O_{11}$, which is soluble in dilute acetic acid and in the lead solution.

Synanthrose prevents the precipitation of cupric, ferric and chromic oxides by alkalies. Freshly precipitated ferric oxide is dissolved by a solution of synanthrose; on evaporation, ferrous oxide is formed

* C=12, O=16.

and glucose. Treated with chromic acid or binoxide of lead, synanthrose yields formic acid. Saccharic and oxalic acids are produced by the action of dilute nitric acid. With a mixture of 1 p. nitric and 2 or 2½ sulphuric acid, nitrosynanthrose is obtained, which is explosive.

Heated to 140° or 145° C., synanthrose turns brown, gas is evolved, and a little caramel formed, besides dextrogyric glucose and lævulosan, which is left behind after the fermentation of the glucose, and appears to be optically inactive.

Synanthrose was found by the author in the tubers of *Compositæ* at all seasons, though in variable quantities according to the age, so that they are richest in it when fully developed.

The new sugar is in many respects closely allied to ordinary cane sugar.—*Archiv d. Pharm.*, 1871, April, 31—39.

PARCHMENT PAPER AS A FILTERING MEDIUM.

BY CHARLES R. C. TICHBORNE, F. C. S., ETC.

The Bunsen filter is now well known and familiar to most manipulators. It merely consists of a funnel and filter connected with an air-tight vessel, in the interior of which a partial vacuum can be produced, either by a Sprengel or ordinary air pump; in fact, by any contrivance by which a downward pressure of some considerable power is exerted upon the fluid washing some precipitate, or upon a liquid it is desirable to filter quickly.

To give us the opportunity of doing this properly, it is necessary to have a nicely prepared support beneath the nozzle of the filter, to enable it to bear the considerable pressure to which it is exposed; the nozzle of the filter being the point of weakness. This is generally done by very carefully forming a little cone of platinum foil, which must exactly fit the bend of the funnel. If the fit is not perfect, it generally results in the breaking of the filter and the failure of the experiment. This is at once obviated, and the platinum nozzle dispensed with, by using parchment paper as a filter. Parchment paper bears, under such circumstances, any reasonable pressure; and yet it is a perfect filtering medium. As regards the strength, Dr. Hofmann says that it becomes five times as strong as the paper before it is parchmented; and I think that, when speaking of moist bibulous paper, it is no exaggeration to say its strength is increased at least twenty times.

In making the parchment paper for this purpose, the following method should be adopted. It differs very little from the ordinary one, except as regards a few precautions:—I use one part of pure sulphuric acid and one-half part of distilled water well mixed in a dish or shallow vessel. Where practical, this mixture should be ice cold, and under no circumstances must it be used while it is warm. Pieces of Swedish filtering-paper should then be dexterously floated upon the acid, so as to bring every particle of the surface in contact with it. But it is not necessary to parchmentize both sides. The next point of importance after the cooling of the acid mixture is the quickness used in the washing, which must be thorough.

This paper, which has proved itself so useful to us for dialytic purposes, forms the most perfect filtering medium, if properly managed, with which I am acquainted. Although, under ordinary circumstances, it is nearly impervious to fluids, they pass through with perfect facility under pressure. The structural change produced by sulphuric acid upon cellulose is the converse of most of the other acids. Thus in paper converted into pyroxyline by the action of nitric acid the fibres are seen, when examined with the microscope, to be more or less contracted, and the result is a non-contiguous, or friable structure, covered with small holes; but in parchmentized paper the fibres are swelled considerably in bulk, and are converted into a colloid or gelatinous substance, which, although slowly pervious to fluids, is very homogeneous in texture, and hence its strength.

In Bunsen's original paper he speaks of the difficulty of preventing filaments of the paper used from becoming mixed with precipitates. "Thus," he says, "another and an inestimable advantage springs from the peculiar condition of a precipitate filtered by this method,—the surface of the filter becomes injured and torn, so that the precipitates becomes mixed with filaments of paper. Gelatinous precipitates (when washed under pressure) adhere to the filter in a thin coherent layer, and may be removed piece after piece so completely that the paper remains perfectly clean and white." Now parchment paper is of that nature that it might be scraped with a knife or brush, without invalidating a quantitative analysis.

Parchment paper would be perfection for filtering by pressure; but, alas! it has one drawback. The practical difficulty is in making the filter lie close to the funnel, so as not to permit atmospheric air to pass down by the side, instead of exerting its pressure upon the

surface of the liquid in the filter. This difficulty is removed by placing an inner filter of ordinary filtering paper larger than the parchment paper one; therefore, the latter should be thin, and only treated with acid on one side. It is from this reason that parchment paper may be used more advantageously in a Bunsen filtering apparatus made on the principle of a percolator—the bottoms of the upper vessel being covered with good strong paper, strengthened with muslin; such an apparatus as this is applicable to many purposes, such as quick and thorough exhaustion of a powder by any menstruum, or the separation of crystals from a viscid liquid.—*Pharm. Journ. and Trans.*, May, 6th, 1870.

THE OCHRO AND THE MUSK MALLOW

By JOHN R. JACKSON, A.L.S.

Curator of Museums, Royal Gardens, Kew.

Perhaps there is no one family of plants having so many species, with such a decided characteristic property running through the whole, as the *Malvaceæ*. Almost all are mucilaginous, and though none of them are officinal in this country, the marsh mallow (*Althæa officinalis*, L.) and the common mallow (*Malva sylvestris*, L.) are sometimes used by the peasantry in rural districts, a decoction of the leaves of the first being applied for fomentations, and the mucilage with which both this and the common mallow abound being employed as a soothing or softening drink in coughs and bronchial affections. It is, however, chiefly in France that the roots are used to produce a demulcent drink known there as Guimauve.

In tropical or temperate regions, where the species of this Order are found most abundantly, the mucilage and seeds of the several species are used by the natives for various medicinal purposes. Two of the most interesting plants are the ochro (*Hibiscus esculentus*, L.) and the musk mallow (*H. Abelsonschus*, L.) the first interesting on account of its esculent and medicinal properties and uses, and the second principally on account of its seeds being used, to a certain extent, as a substitute for animal musk.

The Ochro, or edible hibiscus, is an annual herbaceous plant, with hairy stems and alternate cordate leaves strongly toothed, and from three to five-lobed. The petals are pale yellow, with a deep crimson base. The capsules or fruits appear to vary much in size according

to the country where they are produced. Those we have seen from the East Indies are usually from four to six inches in length and about one inch in diameter at the base, tapering upwards to the apex, while those grown in Venezuela and some other parts of South America, as well as those from South Africa, are not more than two or two and a half inches long and one and a half inches diameter across the centre. They are marked with from five to eight ridges, running longitudinally from the base upwards and corresponding with the number of cells, each ridge forming a valve and partially dehiscing when the fruit is ripe and dry; the small round seeds also becoming loose and shaking in the capsule like a rattle. The plant is a native of the West Indies, but is cultivated extensively in all tropical countries, as well as in the south of France, principally for the sake of its fruit. This is gathered before it is fully ripe and is used as a vegetable, but chiefly for imparting a mucilaginous thickening to soups; it is also used when very young for pickling, like capers. The plant is officinal in India, being considered a valuable emollient and demulcent; the capsules are employed in a decoction. and the Indian Pharmacopœia gives the following instructions for its preparation:—

“Take of the fresh immature capsules, sliced transversely, three ounces; water, a pint and a half. Boil to a pint and strain; sweeten to taste.

“Dose.—From three to six ounces, or *ad libitum*, as an ordinary drink.”

The inhalation of the vapor of the hot decoction has been found very serviceable in allaying cough, hoarseness, irritation of the glottis and other affections of the throat and fauces. The dried capsules may be employed when they are not procurable in a fresh state.

According to the testimony of Dr. Gibson and others, the fresh capsules bruised form an efficient emollient poultice.

The seeds are used in native practice in the preparation of a demulcent drink, corresponding to our use of barley, and the leaves are used for poultices.

The musk mallow (*H. Abelmoschus*, L = *Abelmoschus moschatus*, Moench) is also an annual herbaceous plant with irregularly-toothed hastate leaves. The flowers, like those of the former species, are yellow with a crimson base, and are succeeded by an oblong-lanceolate hairy capsule. The plant is a native of the East Indies, but has

become naturalized in the West, and is also cultivated in most tropical countries.

Both in the East and West Indies the bruised seeds are used internally and externally as a supposed remedy for snake bites ; they have a very strong musky odor, and possess cordial and stomachic properties, and the Arabs mix them with their coffee to give it a perfume. They are also used by perfumers in this country, chiefly, we believe, in the form of powder for sachets, being imported from the West Indies for this purpose.

Both of the above-named plants abound in a strong silky fibre.—*Pharm. Journ. and Trans.* June 3, 1871.

SOPHISTICATIONS.

EDITOR PHARMACIST:—Allow the undersigned to call, through your journal, the attention of the professional brethren to some articles which, in the run after the “almighty dollar,” have been brought in the market, to impose upon too confiding Pharmacists and upon the public.

The first is “Liebig’s Extract of Malt,” manufactured by J. M. Hirsh & Co., in this city. Although its label informs that the manufacturers have been awarded a prize medal at the Paris Exposition, the vignette of Louis Napoleon has lost its charm, and cannot make this miserable preparation good, nor shield it from the deserved exposure.

The syrup-like Extract of Malt, in vast preference to the advertised beers of Hoff, Koch, etc., is said to be really valuable as a nutritive food for infants, dyspeptics, and invalids in general, owing to its containing, in a small compass and in an agreeable, palatable form, all the elements of the grain valuable for nutrition, as albumen, sugar, and phosphates.

But how can this comparatively new remedy be successfully introduced for the benefit of the human race, if, instead of being pleasant to the taste and easy to digest, it nauseates the stomach and creates *a priori* by its offensive odor and unpleasant taste,—an aversion and prejudice against it with the patients who take it, as well as with physicians who prescribe it—if, in short (as Micawber says), the extract of malt is not the extract of malt? And this very thing is our charge against Hirsh’s preparation of that name. An examination of the

same, upon various complaints of the character mentioned, forced upon us the conclusion that Hirsh's Extract of Malt bears a very distant, if any, relation to barley; that the bulk of it is glycerine, and of such a cheap quality, as ought not to be used in pharmacies,—not even for liniments.

It is difficult, as it generally is with organic bodies, to give an exact test for the purity and general quality of the Extract of Malt, but it may be considered a good criterion if a small quantity, heated and burnt in a platinum or iron spoon, over a spirit lamp, issues, as it turns brown, the agreeable, toast-like odor of roasted grain, followed by that of caramel. In Hirsh's extract, the offensive smell of impure glycerine takes the place of the absent odor of the grain.

It may be necessary or advisable to add to the extract, during the warm season, a small quantity, say one-eighth, of glycerine to prevent fermentation; but it ought to be pure glycerine, and if so, it will not interfere with the palatability or the efficacy of the extract, nor with the criterion mentioned.

If pharmacists would prepare this extract, they would easily overcome all the difficulties of manufacture, and would furnish themselves with a standard preparation to judge by, whenever they find it afterwards more convenient to buy it. The proper formula for making the Extract of Malt having been published by Mr. Albert E. Ebert, in No. 11, Vol. III. of *The Pharmacist*,* it may be here suggested that the manipulations can be somewhat shortened if the pulpy mass, as soon as all the starch has been converted into dextrine and glucose, is thrown into a percolator of proper size with a layer of gravel at the bottom; only a small quantity of the liquid has to be returned before it runs perfectly clear. So much for Malt Extract.

The second article of fraud is a "Strictly pure Cream of Tartar, ground from the crystals expressly for the drug trade," offered by a man who, for a number of years, has been a dispenser of pure drugs and medicines, which business he abandoned for the sake of manufacturing baking power and the pure cream of tartar. His confiding nature has probably never permitted him to doubt the purity of anything he dispensed, and judging others by himself, he thinks it an easy matter to palm off the product of his manufacture on the profession, there being the strong inducement that he knows exactly what is needed in the drug trade, having been in it himself. This cream of

* See page 33 of January number of this Journal.

tartar was offered by his agent at less than market price, but being tried with liquor potassæ, it left a sediment of about twenty per cent., which, under effervescence, was readily dissolved by nitric acid, and from that solution precipitated by oxalic acid.

The writer would not have considered this article worth mentioning, trusting in the circumspection of the gentlemen of the profession, if said agent had not exhibited cards of some drug firms who, as he said, had bought from him or promised to buy as soon as they needed any.

Yours respectfully,

C. E. CLACIUS.

Chicago, April, 1871.

—*The Pharmacist, May, 1871.*

PHARMACY IN AUSTRIA.

Among the many political and social questions which are discussed in Austria just now, the relation of the pharmacist to the State is not forgotten. There, as in Germany, the pharmaceutical business is strictly under Government control; the number of pharmacies is limited, etc.

Some members of the profession at Vienna—for it is a profession there and not a trade—have lately petitioned their parliament, the Reichsrath, in favor of free trade, and they are strongly opposed by the Austrian United Society of Apothecaries, consisting of more than 500 members from different parts of the empire. They contradict point after point the arguments adduced by the free-traders in a long document, likewise addressed to the parliament.

As to the state of pharmacy generally, they say the Pharmacopœia is the Codex, prescribing what articles are to be kept, and of what quality. Professional inspectors ascertain by personal visits every year the efficiency of the pharmaceutical establishments, and their annual reports are most favorable.

In order to prove that the limitation of the business to a certain number is most conducive to the true interests of the public, they point to those countries in which free trade in pharmacy does exist.

It is stated as a matter of fact, that in all large towns in this country a few only of the many pharmacies enjoy public confidence. In London, it is asserted not more than 20 out of 3000 pharmacists' shops command undoubted confidence; but these 20 establishments are of such an extent as to employ 30 assistants each. The natural

consequence is, that prescriptions are often sent many miles to the distant shop; and of what use, it is asked, are the undeserving 300 or 400 places on the way?

In regard to France, M. Dorvault, Director of the Pharmacie Centrale at Paris, is quoted, who said, "If the pharmacists are allowed to multiply without limitation, and to enter into competition as keen and bitter as in any other trade, a lamentable falling off in these establishments must be the consequence, and many pharmacists will be forced to adopt means they themselves despise to gain a decent living."

Next, the fixed charges in dispensing, regulated by the State, are discussed, and the question is ventilated which system is most advantageous to the public. It appears the principle followed in the scale of prices is as follows:—Drugs, if sold in comparatively large quantities, are charged the wholesale price, with an addition of 25 per cent., and in small quantities with an addition of 50 per cent. Another charge is made for work, bottles, etc., so that the price of a medicine includes four or five items.

To compare the charges in Austria with those made in England and France, the prices as agreed upon by the Manchester pharmacists, and copied in full from this Journal of 17th December last, are given, and also a copy of a tariff from M. Dorvault's work, '*L'Officine.*' The result of this comparison is, that the prices are in the proportion of Austria 1, France 2, England 3, or the French charges for medicines are twice as high, the English three times as high as the Austrian.

The explanation for this great difference the petitioners find in the fact that, after all, the dispensing business is fixed within certain limits, and that the number of pharmacies in France and England so vastly exceeds the real demand, that each can get only a small share, and tries to make up by higher prices. But even these high prices are not sufficient to ensure the existence of so many participators, and they are driven to sell all sorts of patent and proprietary articles. On this subject the Austrians wax very warm indeed. They quote words of the celebrated Professor Boudet, spoken at the Pharmaceutical Congress at Paris in 1867:—"You high and mighty patrons of specialism, do not barricade yourselves behind sophisms, which mislead nobody. You have made slaves of your colleagues; you have degraded them to retailers of your patent medicines; you have

deprived them of their self-confidence and of their professional honor; you have sacrificed the good-fellowship of your brethren to your egotistical designs, and you speculate only on the weakness and ignorance of the sick, on the suffering of life, and every one becomes without compassion a victim of your guile. Oh! if your principles were realized; if in the civilized world pharmacy were handed over to freedom as you demand, what a flood of specialities! what international rivalry of miraculous remedies would rush down upon us! how the diploma of pharmacy would be degraded! Yes, I do not shrink from saying so; and if that diploma might be had for the trouble of picking it up, where is the man of honor to be found who would stoop to drag it out of the mire into which it has fallen? And as to the millions you realize by your specialities, keep them for yourselves; I value the honor of my country higher!"

The gist of the petition is embodied in three points, viz.:—

1. The principle of free trade is not applicable to the pharmaceutical business.
2. Free trade in pharmacy is antagonistic to the true interests of the public, and must ruin the profession, hitherto so highly esteemed.
3. The present system of licences is the best both for the public and for the proprietors of pharmacies.

And, finally, the petition complains that the Government has removed the two apothecaries from the sanitary council of the empire at a time when in Russia two members of the Pharmaceutical Society of St. Petersburg have been appointed members of the supreme sanitary council, in order to report on all points connected with their profession.—*Pharm. Journ. and Trans.* April, 29th 1871.

SOLUTION OF SANTONINE.

BY JOHN HARLEY, M. D. F. R. C. P., ETC.

The insolubility of this vermifuge impairs its utility. Cold or warm water takes up the merest trace. Chloroform, absolute alcohol, the strongest acetic acid, turpentine, hot olive oil, and hot glycerine, are the only simple fluids that dissolve any appreciable quantity. On cooling, it separates from the oil and glycerine; and the addition of water to the other solvents produces the same result.

It is obvious, therefore, that none of these solvents are adapted for the use of Santonine as a medicinal agent. A wish to determine the

effect of Santonine in parasitic disease of the bladder led me, after a good deal of trouble, to find that I could form a suitable stronger solution than was needed for my purpose by means of carbonate of soda.

I may formularize my results thus:—

R Santonini, in pulvere, gr. xij.
Sodæ bicarbonatis, gr. xx.
Aquæ distillatæ ℥iij.

Put the soda and water into a flask, keep the fluid near the boiling-point, adding, as it disappears, about two grains of the Santonine at a time, until the whole is dissolved. Solution is affected in about half an hour, during which time the water is reduced by boiling to ℥ij. If need be, reduce by boiling to this bulk, when ℥j will contain a full dose—six grains of Santonine. If an alkaline reaction be objectionable, neutralize with acetic acid.

Characters of the Solution.—Bright and permanent, strongly alkaline, free from odor, and excepting that of carbonate of soda, of taste. Carefully neutralized with acetic acid, an equally bright and permanent neutral solution is formed. Both the alkaline and neutral solution may be diluted to any extent with either cold or hot water, without impairing the perfection of the solution of the Santonine. Excess of acetic acid, after some hours, and the mineral acids immediately precipitate the whole, or nearly the whole of the Santonine, unchanged and in its original form of colorless, rectangular plates with bevelled edges.

Use.—By the process above described we obtain a bland *alkaline solution*, so completely void of irritating qualities that it may be dropped into the eye without causing the least sensation; and a *neutral solution*, for use in those cases in which an alkali would be unsuitable.

Mixed with from one to twenty times its bulk of acrid urine, sp. gr. 1017·5, and containing excess of uric acid, and retained at 100° Fahr. for several hours, not the faintest turbidity is produced, unless in the case of the alkaline solution, and an excess of phosphates in the urine, when a faint cloudiness may occur from the separation of the latter.

This proves that excess of acid urine (uric acid) fails to cause a deposition of Santonine.

As an injection, from ℥ss to ℥j (three to six grains) of either solution

may be mixed with three or four ounces of warm water, and passed into the bladder or rectum.

I have already shown that absorption is readily affected by the mucous membrane of the bladder;* and therefore general as well as topical effects may be expected when Santonine is introduced by this channel.

In cases where powders are objected to, a pleasant mixture may be made by adding a little syrup and flavoring water to the Santonine solution.—*The Pharmacist*, April, 1871, from *London Practitioner*.

PREPARATION OF CHLORATE OF BARIUM.

BY C. WIDEMANN.

Heat for half an hour in a water bath the following mixtures:

One molecule of crystallized commercial sulphate alumina $\text{Al}^2(\text{SO}^4)^3 + 18\text{H}^2\text{O}$.

One molecule sulphuric acid.

Two molecules chlorate of potassa.

The whole dissolved into a thin paste by the addition of a sufficient quantity of distilled water. The following reaction takes place:

$\text{Al}^2(\text{SO}^4)^3 + \text{H}^2\text{SO}^4 + 2\text{KClO}^3 = \text{Al}^2(\text{SO}^4)^3\text{K}^2\text{SO}^4 + 2\text{HClO}^3$, or alum and chloric acid.

After cooling, the alum crystallizes. To the cold mass add three or four times its volume of alcohol, then filter and neutralize the filtered liquor by the addition of baryta water, thus forming chlorate and sulphate of barium, also separating a little alumina; the largest amount of alcohol is expelled. The liquor is then refiltered to separate the chlorate in solution, and then the filtered liquid is evaporated to crystallization.

It is necessary, in order to obtain a very pure chlorate, that the sulphate of alumina and the sulphuric acid be used a little in excess.—*Journ. of Applied Chem.*, June, 1871.

* See my last communication to the Medio-Chirurgical Society on the Endemic Hæmaturia of the southeast coast of Africa.

Varieties.

The Importation of Preserved Meat into England.—An interesting return has just been issued from the statistical department of the Board of Trade, giving the importation of preserved meat into this country for the last five years, which shows the enormous extent to which this branch of commerce has been developed, and the rapidly increasing proportions which it has assumed. As might be expected, Australia figures in the list as the largest exporter, and some indication of the startling rapidity which has distinguished the progress of the preserved meat trade between that country and England will be gleaned from the fact that in the year 1866, the exports from Australia to the United Kingdom were only 91 cwts.; in 1867, 6,721 cwts.; in 1868, 16,337 cwts.; in 1869, 28,306 cwts.; and in 1870, 72,812 cwts., which shows that in a period of only five years this trade has risen from comparatively nothing to a very important and considerable amount. This is also forcibly evidenced by the fact that the importations of the meat from Australia in 1866 were valued at £321, while in 1870 they are valued at £203,874—assuredly a sufficiently striking augmentation.

No other countries export preserved meat to an extent at all approximating to Australia. This will be seen from the statistics, which show that the total importation of meat from all countries amounted in 1870 to 80,636 cwts., of which 72,812 cwts. came from Australia, thus leaving only about 8,000 cwts. as the imports from all other countries. Next to Australia, Belgium figures in the list as the largest exporter, 3,299 cwts. of the meat having arrived in England from that country during 1870. In the same year, also, 1,105 cwts. were received from the United States, although in the preceding four years America did not send us any of the meat. Other countries which export this article in moderately small amounts are: British India, 837 cwts.; Uruguay, 693 cwts.; Norway, 678 cwts.; and France, 671 cwts. In the year 1867, Italy exported this meat to England in considerable quantities; but latterly this branch of their exportation appears to have been entirely abandoned.—*Journ. of Applied Chem. June, 1871, from London Grocer.*

Young's Patent Poison Cabinet.—M. J. C. Young, of Warrington, has constructed a poison cabinet, which it is claimed will render difficult the occurrence of mistakes in dispensing. It consists of a certain number of shelves to accommodate a given number of bottles, which are not of uniform size. Each bottle, correctly labelled, is made to fit a certain space upon the shelf, on the front edge of which the name is painted corresponding with the label upon the bottle. Under each shelf is a movable indicator, which, if pushed along until it rests under a name, allows the corresponding bottle only, and no other, to be removed or replaced. This arrangement requires the intelligent reading of the label twice, thus calling the dispenser's attention to the nature of the substance which he is about to use.—*Pharm. Journ. and Transact., April 29, 1871, p. 870.*

Poisoning by Sulphate of Atropia.—By mistaking two vials, and without

reading the directions, a lady had swallowed about two-thirds of a grain of sulphate of atropia. About twenty minutes afterwards, medical aid was at hand. Doctors Christopher Johnston and George Reuling succeeded in saving the patient through the evacuation of the stomach by means of the pump, and through the hypodermical injection of forty minims of Magendie's solution. Subsequently fearing, from the symptoms, narcotism by the morphia, a solution of caffein and strong hot coffee was injected, and the battery applied. In 18 hours the patient was out of danger, and in 23 hours she merely felt a "little uncomfortable." — *Balt. Medic. Journ. and Bull.*, April, 1871, p. 216—219.

Coating of Copper and Brass with Zinc in the Humid Way.—Zinc is finely granulated, by pouring the fused metal into a hot iron mortar and triturating it rapidly with the pestle until it has congealed. Prof. Böttger heats a concentrated solution of sal ammoniac, in a suitable non-metallic vessel, to the boiling point, together with the finely granulated zinc. Into this bath the articles are introduced after their surface has been cleaned with dilute mariatic acid. A brilliant and lasting coating of zinc is deposited upon them in a few minutes.—*Arch. d. Ph.*, from *Wieck's Gew. Zeit.* No. 25. 1870.

Appointments.—Dr. D. Hayes Agnew has been elected to the chair of Principles and Practice of Surgery in the University of Pennsylvania, made vacant by the resignation of Prof. H. H. Smith.

Prof. Alfred Stillé, M.D. of the same University, has been appointed a member of the Board of Health of this city.

Dr. Victor Merz has been appointed Professor of Chemistry and Director of the Chemical Laboratory at the University of Zurich, Switzerland, and Dr. W. Weith, Professor of Pharmaceutical and Analytical Chemistry.

Female Apothecary.—The "Ostseezeitung" states that recently, before the government examiners, a lady passed the examination as apothecary, and acquitted herself so well that she received the censure "excellent." It is the Deaconess Phillipina Mangelsdorff who was thus recognized as the first female apothecary in the Province of Pommerania, Prussia.

Influence which Coffee and Cacao exert as Food.—Dr. Rabuteau.—This paper contains the account of some experiments made with dogs, to which the author gave diets in one case consisting daily of 20 grms. of bread, 10 grms. of fresh butter, and 10 grms. of sugar; in the other case. 20 grms. of cacao, 10 grms. of sugar and an infusion of 20 grms. of well roasted coffee. From these experiments the author draws conclusions leading him to consider coffee and cacao as simply preventing de-nutrition. This view was objected to at the meeting by MM. Payen, Dumas, and Chevreul, whose lengthy discussions on this subject are reproduced. As regards cacao (commonly, but erroneously, in this country named cocoa), there can be no doubt that, containing as it does from 17 to 20 per cent of albuminous matter, with from 10 to 12 per cent of starch, from 40 to 50 per cent of fat, and among its mineral matter phosphates, it is food. M. Chevreul, very properly observes, among other matters, the existence of idiosyncrasy and its influence on the individual tastes, and hence also more or less on the action of various alimentary substances, pointing out that he himself

has, from his earliest years, an invincible repugnance against wine, milk, fish, and various vegetables, none of which he ever partakes of, but for all that it would, of course, be absurd to deny the nutritive properties and value of these substances,—*Chem. News. March 31st, 1871.*

The After-taste of Quinine.—In practice there is often experienced a great difficulty in getting patients to take quinine, because of its after-taste, which to some is simply unbearable, and when antipathy thus exists, combined with a difficulty in swallowing pills, the therapeutic value of an important drug is lost. We find, and the fact may not be generally known, that the mastication of some acid fruit, as an apple or a pear, will permanently remove the disagreeable after-taste of quinine. The first mouthful of food should be well masticated and rolled through the mouth, so as to cleanse the teeth, etc., and then ejected. The second morsel may be swallowed, when it will be discovered that all taste of the quinine will be removed.—*Boston Med. and Surg. Journal, June 8th, 1871, from Med. Press and Circular.*

Styptic Wool.—The following is quoted from the *Lancet* by the *American Journal of Dental Science*:

Dr. EHRLICH, of Isny, makes known a very simple preparation of wool that he has found very serviceable in arresting hemorrhage after operations or from wounds. To prepare it he boils the finest carded wool for half an hour or an hour in a solution containing four per cent. of soda, then thoroughly washes it out in cool spring water, wrings it and dries it. The wool is thus effectually purified, and is now capable of imbibing fluids uniformly. It is then to be dipped two or three times in fluid chloride of iron diluted with one third of water, expressed and dried in a draught of air, but not in the sun or with high heat; finally it is carded out. Thus prepared it is of a beautiful yellow color, and feels like ordinary dry cotton wool. As it is highly hygroscopic, it must be kept dry, and when required to be transported must be packed in caoutchouc, or bladder. Charpie may be prepared in a similar manner, but on account of its coarse texture is not so effective as cotton wool, presenting a less surface for coagulation. When the wool is placed on a bleeding wound, it induces moderate contraction of the tissue, coagulation of the blood that has escaped, and subsequently coagulation of the blood that is contained within the injured vessels, and this arrests the hemorrhage. The coagulating power of the chloride of iron is clearly exalted by the extension of its surface that is in this way affected. The application of the prepared wool is not particularly painful, whilst, by sucking up the superfluous discharge and preventing its decomposition, it seems to operate favorably on the progress of the wound. The unpleasant secondary results that have led many practical surgeons to discard the use of the perchloride of iron do not occur with the wool when it is properly made and applied. In case of wounds where the bleeding proceeds from large and deep seated vessels, it may be used as a compress, a bandage being applied over it, or the wound may be plugged with it. It may also be employed with advantage in cases of profuse suppuration, to imbibe the discharge and purify the surface. He recommends that a small portion should be given to every soldier on going into action.—*Med. and Surg. Journal.*

AMERICAN PHARMACEUTICAL ASSOCIATION.

NOTICE.

The Nineteenth Annual Meeting of the American Pharmaceutical Association will be held in the city of St. Louis, Missouri, on the second Tuesday (12th) of September, 1871, commencing at 3 o'clock P.M.

With the view of increasing the interest and importance of this meeting the Committee of Local Arrangements will endeavor to make the display of products in any way connected with the drug business as extensive as possible.

Specimens of crude drugs, especially such as are indigenous to the West and South, will serve to illustrate the materia medica of the great Valley of the Mississippi, and are particularly desirable articles for exhibition; they should be delivered, free of expense, to Wm. H. Crawford, Local Secretary, St. Louis, accompanied by an invoice and description.

It is earnestly hoped that all who are eligible and who are not already members will become such, and thus more nearly equalize the representative number of members among all the States, which would greatly increase the usefulness of the Association, and render it more national in character.

R. H. STABLER, M. D., *President.*

Alexandria, Va., June 13, 1871.

Minutes of the Philadelphia College of Pharmacy.

A stated meeting of the Philadelphia College of Pharmacy was held at the College building June 26, 1871. Dillwyn Parrish, President, in the chair. 19 members present.

The minutes of last meeting were read and approved. The minutes of the Board of Trustees were read by the Secretary of the College.

The following report was read from the Publishing Committee:

The Publishing Committee respectfully report the estimated expenses of the Committee for the remaining 6 mos. of the year about \$2,000.

The amount estimated as collectable this year by the Business Editor the Committee think considerably in excess of what will be realized, and, in the uncertainty of collecting accounts which are not promptly settled, and the necessity for paying cash for the paper and printing of the Journal, and monthly settlement of salaries of Editor and Business Editor, induce the Committee to believe that the interest of the College would be best served by making no transfer of money in the hands of the Committee to the Sinking Fund before the annual meeting of the College in March next.

WILLIAM PROCTER, JR.,
CHAS. BULLOCK,
THOS. S. WIEGAND.

Philadelphia, June 26, 1871.

On motion of James T. Shinn, the Treasurer of the Committee on Latin Labels was directed to pay to the Committee on the Sinking Fund the balance

of cash in the hands of their Treasurer, agreeably to his report in March last

The following preamble and resolution, offered by William Procter, Jr., was read and adopted:

WHEREAS, at the close of the annual meeting, just as the election was being entered upon, Charles Ellis declined re-election as a member of the Committee of Publication, on which he had served near forty years, nearly the whole time acting as Treasurer; therefore

Resolved, That the Philadelphia College of Pharmacy, appreciating the long and disinterested services of Charles Ellis as a member of the Committee of Publication, and desiring to express their sense of his faithfulness, in this public manner, hereby tender him a vote of thanks, and direct its publication in the Journal.

The appointment of delegates to the coming session of the American Pharmaceutical Association being in order, a ballot was ordered. Messrs. W. J. Jenks and T. S. Wiegand, acting as tellers, reported the election of Prof. Jno. M. Maisch, Thomas S. Wiegand, Jos. P. Remington, Charles Bullock, William Procter, Jr.

On motion of Dr. Robert Bridges, the Committee was empowered to fill vacancies occurring from inability of any member to attend the meeting of the Association.

On motion, then adjourned.

CHAS. BULLOCK, *Secretary*.

Pharmaceutical Colleges and Associations.

Massachusetts College of Pharmacy—Alumni Association.—The annual meeting of this Association was held at Boston on Friday evening, May 19th. After the election of new members, the President, Prof. G. F. H. Markoe, delivered the annual address. The following officers were elected for the ensuing year: President, Prof. G. F. H. Markoe; Vice-Presidents, C. B. R. Hazeltine, J. T. Brown, Jr.; Treasurer, Chas. H. Bassett; Secretary, Thos. Doliber; Executive Committee, J. H. Dyer, Edward T. Kelley, John C. Lowd, George F. Raymore; Delegates to the American Pharmaceutical Association, Charles A. Tufts, Thomas Doliber, George H. Beale, Geo. E. Raymore, J. Howes Dyer. The members together with some invited guests then partook of the annual supper.

College of Pharmacy of the City of New York.—At a social meeting of the College, held June 15th, Prof. Chas. F. Chandler delivered a lecture on Celestial Chemistry as revealed by the use of the Spectroscope. After explaining the origin and composition of meteorites, and the probable composition of many of the heavenly bodies, the principles of the spectroscope were detailed and illustrative diagrams exhibited. After the close of the lecture the audience had an opportunity of viewing through an instrument the peculiar colored bands produced by the vapor of various metallic compounds.

The Alumni Association of the New York College of Pharmacy was fully organized by the adoption of by-laws at an adjourned meeting held June 7th. By vote of those present a prize of fifty dollars was authorized to be awarded to the graduating student presenting the best thesis. The Executive Board, at a meeting held June 15th, elected the following delegates to the American Pharmaceutical Association: Daniel C. Robbins, New York; John W. Ballard, Davenport, Iowa; John Best, Central City, Colorado; Hampden Osborn, Columbus, Miss.; Henry C. Porter, Towanda, Pa.

The Maryland College of Pharmacy held its annual meeting in Baltimore on Thursday, June 8th. After the usual business, the reading and disposing of the reports of committees, &c., several communications and papers were read, and various scientific subjects discussed. A number of old and more recent articles relating to pharmacy and the collateral sciences were on exhibition, such as books, apparatus, preparations, labels, &c.

Alumni Association.—The graduates of the Maryland College of Pharmacy held a meeting on Monday night, June 5th, in the hall of the College, for the purpose of organizing an alumni society. The following gentlemen were elected officers: President, W. S. Thompson; Vice-President, C. E. Dohme; Secretary, John H. Hancock; Treasurer, A. A. Kleinschmidt; Executive Board, C. E. Dohme, John Sohl, Julius Fahlen, and Charles Caspari.

Chicago College of Pharmacy.—We learn from the announcement of the lectures of this College, as given in the June number of the *Pharmacist*, that our friend Albert E. Ebert has been selected to fill the Chair of Theory and Practice of Pharmacy, in place of Prof. N. Gray Bartlett, who takes the Chair of Inorganic and Pharmaceutical Chemistry, formerly held by Professor Blaney.

Mississippi Pharmaceutical Association.—Sooner than we had expected, the pharmacists of the State of Mississippi have formed a State association. The meeting took place, at the city of Jackson, May 29th, Mr. M. F. Ash having been appointed President *pro tem*.

The Preamble and Constitution of the American Pharmaceutical Association was read, amended and adopted, and Mr. J. T. Buck, of Jackson, was appointed a Committee to draft the same for publication.

The Association then elected the following officers for the ensuing year:

President, M. F. Ash, of Jackson; Vice-President, P. Keefe, of Vicksburg; Treasurer, John T. Buck, of Jackson; Secretary, W. P. Creecy, of Vicksburg; Cor. Secretary, Hampden Osborn, Columbus

After the appointment of a Committee of three, to prepare an address to the druggists of the State, it was resolved that the President is *ex officio* Delegate to the State Medical Association, and the State Medical Association was invited to send a delegate to represent them and co-operate with this Association.

On motion of Mr. Buck, all pharmacists in the State were requested to join the American Pharmaceutical Association.

The thanks of the Association were tendered to the Vicksburg and Meridian R.R. Co. for their kindness in passing delegates at half fare.

The Convention then adjourned, to meet at Holly Springs on Friday, the 8th day of April, 1872.

Pharmacy in Italy.—The draft of a sanitary code, lately submitted to the Italian parliament, restricts the practice of pharmacy to pharmacists possessing a pharmaceutical diploma, but recognizes their right to locate wherever they please.

The Collegio Farmaceutico Italiano was organized at Verona on the 27th of March last, for the purpose of guarding the interests of pharmacy. Each of the six provincial associations (Lombardy, Venice, Sardinia, Central Italy, Naples and Sicily) elect a vice-president, and these the president. The present officers are Messrs. Colleoni of Venice, Mosca of Turin, Cicconi of Rome, Kernot of Naples, Monteforte of Palermo, Garofolletti of Milan.

Pharmacy in Russia.—In view of the probability that the next meeting of the International Pharmaceutical Congress be held at St. Petersburg, the pharmaceutical society of that city urges the formation of a general Russian Pharmaceutical Society, to be inaugurated at about the time of the meeting of the Congress.

Editorial Department.

NINETEENTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.—The official announcement of the president will be found on another page. Just ten years after the Association contemplated meeting there, it will meet on the twelfth of September next, for the first time west of the Mississippi river. In 1860, the Association appointed a committee of nine members residing in different sections of the country, for the purpose of promoting the attendance of members at the meeting in 1861. That meeting could not be held; of the committee then appointed, two are resting from their earthly labors, three have ceased to be members, while the remaining four are likely to attend the coming meeting; they are Messrs. S. M. Colcord, Boston; Prof. Parrish, Philadelphia; E. O. Gale, Chicago and W. J. M. Gordon, Cincinnati.

During the last ten years these meetings have continually increased in interest and in the number of the attendants, so that we may safely expect a large gathering. The exhibitions have attracted a growing interest, and from the exertions our friends in St. Louis have been making, we feel assured that the next one will likewise be a success. The local secretary, Mr. W. H. Crawford, will give all the necessary information.

The permanent secretary is endeavoring to procure a reduction of fare for members and their families living at a distance from St. Louis; all those contemplating to be present are requested to communicate with him, so that the requisite steps may be taken in good season.

LIEBIG'S DIETETIC ARTICLES.—Professor J. von Liebig publishes a card in the German Scientific Journals, in which he calls attention to a number of dietetic and other articles, to which the manufacturers have attached his name. Several of these preparations have also been introduced into the United States, and it is therefore proper that the pharmacists and physicians of this country should be put on their guard against *such bare faced dishonesty*. Some years ago, it will be remembered, Liebig suggested a food for infants which was noticed in the Amer. Journ. Pharm. 1865, page 226. The preparation is in the form of a coarse powder, and was experimented with by many physicians, but did not meet with universal favor. Soon after J. Paul Liebe, homœopathic apothecary of Dresden, Germany, introduced a preparation in the form of a thick syrup under the title of "Liebig's food for infants in soluble condition," and meeting with success, subsequently changed the name to "Liebe—Liebig's food for infants" (Nahrungs-Mittel für Säuglinge). Nobody could have reasonably found any fault with the former, as long as the manufacturer adhered strictly to Liebig's direction for preparing the soup; and the use of the latter name even may be defended. But encouraged by his success, Liebe put forth a number of preparations to which he attaches Liebig's name, among them a condensed milk, unfermented extract of malt, malt extract with iron, iodine, quinia, iodide of iron, etc. Professor Liebig declares in regard to these:

"I am in no connection whatever with J. P. Liebe at Dresden, and with other manufacturers of similar products; I have neither examined nor given an opinion on their preparations. I am not the inventor of a malt extract, nor have I given directions for preparing a condensed milk. J. P. Liebe and other manufacturers have arbitrarily connected my name with their preparations, without my consent and, of course, against my will."

This disclaimer is very plain and fair as far as its relates to the above mentioned specialties; but it is probably hurled also against the extracts of meat which, of late years, have appeared in the market connected with Liebig's name, for immediately afterwards follows the declaration: "The only preparation bearing my name with my permission, is the extract of meat manufactured in Fray Bentos, South America."

It is the same complaint or rather insinuation advanced several times during the last five or six years, as if a preparation made from the same material and by the same process, was not the same, whether made at Fray Bentos, in Australia, in Texas or some other place. Liebig's name, we dare say, will be ever used in connection with this extract of meat, and deservedly so; but it sounds strangely and smacks strongly of the usage of the patent medicine men with which our country is infested, when we read the *caution* printed on the circulars accompanying each jar of the Liebig company's extract. It is the only kind which we have been using for years, because the known terms of the contract, which are undoubtedly faithfully carried out, carry with them such strong guarantees of uniform quality, that this alone is sufficient to compensate for any difference in price. The greatest mistake, in our opinion, made by most of the manufacturers of Liebig's extract of meat, is that they neglect to enter into similar compacts with chemists of undoubted integrity, so that *every* batch

of extract manufactured by them would be examined after it is put up, which is the only way to insure the greatest possible uniformity. While Liebig's extract of meat may vary somewhat in the relative proportion of its constituents and even in color, physical properties alone do not afford a good and reliable criterion of its quality. Unobjectionable extracts of meat have been furnished by other companies than the Fray Bentos; but in most cases the assurance is wanting that the article is furnished always of uniform quality.

MODERN ELIXIRS.—We publish in the present number the formulary of elixirs adopted by the Newark Pharmaceutical Association, to which we alluded in the preceding number, and take occasion to express our gratification at the position our friends have taken. There is ample opportunity and quite sufficient cause for pharmacists in other parts of the country to follow the example set by our brethren in Baltimore, Newark and some other cities. The abuses to which the introduction of these and similar preparations have led are quite numerous, and if some of them could be known to their full extent they would probably present an appalling picture.

The inception of this class of preparations probably arose from the necessity of presenting to the patient some bitter, nauseous drugs in a pleasing and palatable form; but of late years many parties in different parts of the country have applied their ingenuity to the invention of all sorts of elixirs, medicinal wines, and similar preparations, and unthinking physicians and pharmacists have promoted the introduction of these wares to such an extent that in some places they have become a perfect nuisance. A few bottles of such preparations left with the physician or apothecary, in many instances secure their patronage, the former prescribing, the latter recommending these particular manufactures, until in some officines it has become necessary to keep, for dispensing, preparations bearing the same name, but emanating from half a dozen and more inventors. This deplorable state of affairs can be counteracted in but two ways—either by the method adopted by the Newark Pharmaceutical Association, or by that inaugurated some years ago by the Maryland College of Pharmacy. The former endeavors to frame formulas, and rigidly adheres to them in all cases where a special make is not ordered; the latter regards them in the light of nostrums, because their mode of preparation is withheld, or, if published, yields a different article; hence the refusal to dispense any elixirs, &c., unless made by formulas approved by the College. This latter way, if more generally followed, would doubtless arraign them publicly in the position which they ought to occupy, and soon sweep them from the shelves of respectable pharmacies. We have no information how far our Baltimore friends have gone in this matter. We remember that six years ago they commenced with elixir of valerianate of ammonia, and afterwards supplanted commercial bitter wine of iron, which is not bitter. If they have not rested there, their continued labors ought to show some good results now.

But there is another side to this question, which shows, perhaps, a still more pernicious influence. Some of these preparations are so destitute of medicinal properties, but are so agreeable to the taste, that they may be taken for some

length of time, until gradually, through the alcohol they contain, they create an appetite for alcoholic stimulants. It is not our purpose to inquire to whom attaches the greater blame for *such* a result, which outweighs, by far, all the benefit that may possibly be conferred by the pleasing appearance and the agreeable taste. But we offer this observation as another reason for pharmacists—individuals as well as associations—to follow in the path pointed out above, before the greater part of our Pharmacopœia is supplanted by the elixirs, wines, cordials, &c., made and offered as specialties by a host of manufacturers.

FRAUDULENT SUBSTITUTIONS.—We have been informed that the publication of Mr. Bullock's paper, on page 92 in the February number of this journal, has not stopped the fraudulent sale of muriate of cinchonia for sulphate of quinia, but that, on the contrary, it is being sold quite largely, under the label of Pelletier, Delondre et Levaillant. Our readers are requested to examine all quinia that may be offered to them under the above garb; in fact, it is advisable, in view of the counterfeiting perpetrated, not to trust to *any* label, unless the quinia be obtained directly from the manufacturers.

Such a course seems to be the more imperative since lately another fraudulent substitution has occurred in New York, and is quite likely to victimize the unsuspicious. Our informant states that *sulphate of quinia has been sold for sulphate of morphia*. It is offered in original 1 oz. bottles, put up by Atkinson of London, the quinine label being removed by the impostor, and a sulphate of morphia label is substituted. This fraud must necessarily be detected even by the tyro, in consequence of the sparing solubility of the quinia salt. But, if the above counterfeiter of Pelletier's label should embark in this new enterprise, the test of solubility would be insufficient. We therefore repeat our caution expressed above, also for morphia, and suggest the examination of each sample, by proving by the well-known tests the presence of morphia and the absence of quinia and cinchonia.

NEUES JAHRBUCH FÜR PHARMACIE.—In the advertising sheet of the present number appears the advertisement of the above named journal. The pharmaceutical intercourse between America and Europe is continually on the increase, and the influence of one civilized country upon another is felt more and more every year. It is therefore desirable that the pharmaceutical literature of each country should become better known abroad, and it is with this end in view that we direct the attention of those pharmacists conversant with the German language, to one of the best edited pharmaceutical journals.

THE NEW YORK BOARD OF EXAMINERS will shortly organize. Mayor Hall has appointed Messrs. Wm. Graham, Theobald Frohwein, Dr. R. O. Doremus and Dr. C. M. O'Leary, the Examining Board under the law which we took occasion to criticize in our last number. The appointments, as far as we are acquainted with the gentlemen, are more satisfactory than the law itself, and reflect credit upon the Mayor. Mr. Graham is in charge of one of the stores of the firm of Hegeman & Co. Mr. Frohwein is a graduate and now one of the

officers of the N. Y. College of Pharmacy. Dr. Doremus was formerly Professor of Chemistry in the same college. We know nothing about Dr. O'Leary's pharmaceutical accomplishments.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Chemical Nomenclature of the Pharmacopœia, with Suggestions for its Revision. By Professor Attfield. Including opinions on the proposed system by chemical and pharmaceutical authorities; and additional remarks by the author. Reprinted from the *Pharmaceutical Journal* for April 8th, 15th and 29th, 1871.

The subject of this paper is an important one. It proposes to do away with the necessity of changing the chemical names of the Pharmacopœia hereafter to meet the chemical views and theories that may be held at the time by the majority of chemists. The author's views are happily expressed in the following passage: "I believe the time has come when, by making a few slight alterations in the terminations of a few of our chemical names, we shall have a system of pharmaceutical nomenclature which, while perfectly harmonious with, is quite independent of, scientific chemical nomenclature, and which therefore contains greater elements of permanence than any yet adopted."

The views of the chemists of the present day favor the unitary system of nomenclature and notation, and the slight changes proposed by Dr. Attfield, though not identical, are nevertheless in harmony therewith, and would be consistent with the binary system if chemists should ever change their views again in favor of the latter. The idea underlying these propositions is the uniformity of composition of salts, whether the acidulous radical contains oxygen or not, and that the basylous radical in both kinds of salts is the same, namely, the metal, and not the oxide of the metal. Hence we shall have, according to Dr. Attfield's proposition, Sodii sulphas, just as we now have Sodii chloridum, &c. The proposed changes are in accordance with the nomenclature at present in use in our Pharmacopœia for the salts of the heavier metals. Here we have, for instance, sulphate of zinc, and not sulphate of the oxide of zinc, as it now ought to be, to conform with the corresponding salts of the alkalies and earths.

It will be seen that these changes merely involve an alteration in the termination of the names, and, since physicians and pharmacists nearly always abbreviate these terms, no change will be required either in the labels of the shop bottles, or in the writing of prescriptions. On the other hand, however, they would facilitate to the pharmaceutical student the understanding and appreciation of the chemical processes, composition and decompositions.

We also agree with the author, that the present pharmaceutical names of certain chemical compounds, which are definite and universally understood, do not require any change to indicate their chemical composition; thus alum, chalk, lime, magnesia, &c., are proposed to be retained. Some exceptional nomenclatures are also considered, and, while in regard to these the views may differ, they are of minor importance and do not interfere in the least with the adoption of the main principle involved in these propositions.

Our views coincide in principle with those advanced by Prof. Attfeld, and we heartily commend them to the consideration of the Committee having in charge the revision of the United States Pharmacopœia.

American Manures, and Farmers' and Planters' Guide. Comprising a description of the elements and composition of plants and soils, the theory and practice of composting, the value of stable manure and waste products, &c.; also, chemical analyses of the principal manufactured fertilizers, their assumed and real value, and a full exposé of the frauds practiced upon purchasers. By James Bennett Chynoweth and Wm. H. Bruckner, Ph. D. Philadelphia: Chynoweth & Co., 1871. 12mo, 260 pages. Bound in cloth. \$1.50.

The authors say, in the preface to this little volume: "It has ever been considered the duty of each member of a community to do all in his power to expose and redress existing wrongs, especially when those wrongs affect the vital interests of all. . . . We shall unmask practices that have been backed up by favorable reports and artfully designed statements, falsely claiming to be benefits conferred on the community, and which, from a want of knowledge to distinguish real from imaginary good, have passed currently as such." These passages explain the ultimate object of the book, namely, to prove that none of the fertilizers in our markets contain enough fertilizing material to warrant the price charged for them. Thus the fertilizing value of one article sold at \$56 per ton is calculated to be \$37, while another article sold at \$40 is worth only \$6. These calculations are based upon actual analysis—which is briefly described—of samples purchased directly from the manufacturers or their agents, and upon values which in Chapter V are estimated to yield to the manufacturer a profit of 33 per cent., figures which, from the experience of one of the authors as superintendent of a manure factory, may be assumed as correct.

With the results of their analyses of American manures, the authors contrast the composition of some German superphosphates, showing that, under the inspection system, their value as fertilizers is much greater. It is interesting to note that every purchaser of not less than half a ton of the manure manufactured at Mannheim, Germany has the privilege of having it analyzed without expense to himself, by the President of the Agricultural Experimental Station at Carlsruhe. We are not partial to the appointment of inspectors here, because such offices are too readily dragged down into mere political sinecures; but we believe that the manufacturers owe it to themselves as well as to their customers to make arrangements with honest and competent chemists to undertake such examinations free of expense to the purchaser of a certain quantity.

The statements and certificates contained in the circulars of the manufacturers are contrasted by the authors with their results and calculations, and often sharply criticized.

The book is not merely of ephemeral value, but the six first chapters contain much information of lasting value to the farmer, and are written in such a clear manner, divested as much as possible of scientific language, that they can be readily understood.

Report of the General Committee of the Cincinnati Industrial Exposition, held in Cincinnati, under the auspices of the Ohio Mechanics' Institute, Board of Trade and Chamber of Commerce, from Sept. 21st to Oct. 22d, 1870. 8vo, 400 pages.

The reception of this report is acknowledged, together with the announcement of the exhibition, to be held in the same city for one month, commencing Sept. 6th next. Class XVI of the last exhibition comprised chemicals, paints, oils, soaps and candles, also pharmaceutical preparations. The judges were Dr. J. S. Unzicker, Prof. E. S. Wayne and Chas. C. Reakirt.

The Eye in Health and Disease: being a series of articles on the anatomy and physiology of the human eye, and its surgical and medical treatment. By B. Jay Jeffreys, A.M., M.D., &c. Boston: Alexander Moore, Lee & Shepard; New York: Lee, Shepard & Dillingham. 1871. 8vo, 120 pages, with 30 illustrations. Bound in cloth. Price, \$1.50.

The book consists of a number of articles contributed at first to a journal, and intended for the instruction of the laity in reference to the care of the eye, a purpose which it is well calculated to accomplish. The author, who acts as ophthalmic surgeon to several hospitals, and is lecturer on the eye at Harvard University, is perfectly familiar with this subject, and we believe that even the professional surgeon will find in it many new and interesting facts.

The Modern Operation for Cataract. A lecture delivered at the Harvard Medical School April 5th, 1871, with an analysis of sixty-one operations. By Hasket Derby, M.D., University Lecturer on Ophthalmology and Surgeon to the Massachusetts Charitable Eye and Ear Infirmary. Boston, 1871. 8vo, 24 pp.

We have been much pleased with the perusal of this lecture, which gives a lucid account of the history and practice of Professor von Graefe's method of operation for cataract, which was named by that celebrated surgeon, at first, the "modified," but afterwards the "peripheric linear extraction." An analysis of 61 (including his earliest) operations performed by the author is appended. Of this number three only proved to be failures, two of these having occurred in the first period of his practice.

OBITUARY.

DR. GEORGE A. C. STÄDELER was born at Hanover, Germany, March 25th 1821. He served an apprentice- and clerkship to the apothecary business, and subsequently studied botany, and chemistry at Goettingen. As the assistant of Prof. Wöhler, he commenced, in 1847, his researches on the production of chloral from starch, which of latter years attracted much attention. (See Am. Journ. Ph. 1870, p. 177.) For several years he devoted much time to researches in physiological chemistry. In 1853 he was selected to fill the chair of general chemistry at the University of Zurich, made vacant by the death of Loewig; and, in 1855, when the Swiss "Polytechnicum" was founded, he was also elected Professor of Analytical Chemistry at this institution, where he labored with great success until, in the fall of 1870, he found it necessary to resign his position in consequence of disease of the heart, which had gradually developed itself for about seven years. He died at the residence of his parents, both surviving, at Hanover, on the 11th of January last, having nearly complete his fiftieth year.

THE AMERICAN JOURNAL OF PHARMACY.

AUGUST, 1871.

PHARMACY IN PRUSSIA AND IN THE GERMAN EMPIRE.

BY FRED. HOFFMANN, PH. D.*

The management of the medical affairs in Prussia belongs to the Ministry of Ecclesiastic, Educational and Medical Affairs. With the entire internal executive administration of the empire, it is ultimately concentrated in the bureau of the imperial Chancellor. In both these supreme departments all administrative branches are represented by boards composed of administrative and technical councillors.

The highest administrative bureaus of the civil government in the Provinces of the empire are the Provincial Presidency (*Oberpräsidium*), whose chief is the “*Oberpräsident*,” or Governor, and the District Governments, or Regencies (*Regierungen*). Each province has only one governor; but, in proportion to its area and number of inhabitants, they are divided into two or more Regencies, in which the administrative branches are also represented by boards.

The Regency of the provincial capital, which is the seat of the Governor and the superior military, civil, judiciary, ecclesiastical and educational authorities, has, among others, a department for the medical and sanitary affairs of the province (*Medicinal-Collegium*), presided over by the Governor and by the President of the Regency. The councillors of this board are two physicians, one or two pharmacutists, one veterinary surgeon, and one or two jurists.

The regencies are subdivided into districts or counties (*Kreise*), the

* This essay has been written at the request of the Editor of the Journal, and to him I am indebted for the translation of the greater part of it from German into English.

medical and sanitary affairs of which, not properly belonging to the department of Police or to municipal supervision, are guarded by the district physicus (a health officer who is a physician), the district pharmacist and the district veterinary surgeon. Their authority is limited to memorializing the provincial Regency, obtaining the decisions and regulations of the latter, and initiating their enforcement.

More important administrative affairs are reported either directly to the Provincial Medical Council or to the Governor, or, like the establishment of new pharmacies, have to pass through all the successive bureaus to receive the final decision of the Governor. In such cases reports are demanded of the interested parties, of the municipal authorities, of the district or city physicus, and of the provincial medical council.

The only direct control which the government exercises over the pharmacies and pharmacutists consists in the inspection of the pharmacies, which is compulsory every three years, but which may be performed oftener if judged necessary, or if called for by the apothecary or by the district or municipal authorities. This inspection is no dead-letter, but is a severe searching operation, performed by a delegation nominated by the Provincial government, and consisting of the presiding medical councillor of the Provincial government (Regierungs-Medicinalrath), the district physicus, the district and some other delegated apothecary. One or more representatives of the local municipal authorities are always invited to attend the inspection. Not only are the drugs and the entire stock examined, but also the assistants and apprentices. The inspectors examine the apothecary's diploma, license, pharmacopœia, library, herbarium, prescription books, and the prices charged for the prescriptions therein. Assistants and apprentices are required to show their examination certificates, are asked questions on the pharmaceutical sciences, on the pharmacopœia, and have to submit to an inquiry into their studies, diligence, and progress. Most drugs, especially those liable to sophistication, and all pharmaceutical and chemical preparations, are examined and tested. Store, laboratory, storerooms and cellar are inspected minutely. A résumé of the entire inspection is made and signed by all delegates and witnesses, and is sent to and kept by the Provincial government. From this the apothecary receives a report of the result of the inspection, with either acknowledging reflections, coun-

sels for his or his assistants benefit, or polite but precise and firm reprimands.

Another less severe control of the government is exercised by the requirement that the district physicus and apothecary have to be informed of any change of the assistants and apprentices. The assistants, when entering a new situation, have to present themselves to the district physicus and apothecary, who have to countersign the certificate required and given to the assistant when leaving his situation.

The intercourse of the civil and judicial authorities with all citizens being dignified and polite, though strict, and without regard to position, means or rank, the relations of the authorities to the apothecaries is likewise characterized by consideration and respect. Like all other professions, there is a great deal required from the apothecary: a high status of professional competency, fidelity and uncompromising reliability. In return, the state grants him protection, and in ordinary life he enjoys the confidence and esteem of the public, by virtue of his vocation.

Pharmaceutical Education.

The young applicant for an apprenticeship receives the requisite permission from the district physicus and district apothecary upon an application accompanied by a curriculum vitæ and testimonials showing that he has reached the second class in a state classical school (gymnasium), or gained the proficiency for the same, and that his reputation and character are good, of which qualifications the district physicus may satisfy himself by personal examination.*

The apprenticeship has been fixed for three years, of which time an abatement of six months is allowed to those only who previously had attained the necessary qualifications for immatriculation at a university. The preceptor is bound to instruct his apprentices, theoretically as well as practically, in pharmacy and its collateral sciences, and to furnish the requisite apparatus for this purpose. Sufficient time must be allowed to the young men, aside from their daily labor

* It deserves to be mentioned that in Prussia a thorough preliminary and school education is demanded as the requisite foundation of subsequent capability and profoundness. This is rendered possible by an excellent educational system, and is made the *conditio sine qua non* on entering upon any professional career.

in the officine and laboratory, to prosecute their studies, and in summer to undertake botanical excursions for the purpose of preparing a herbarium. They have to keep a journal of all preparations made by them, and to enter therein a short description of the theory and the practice of the processes.

When the apprenticeship has been completed to the satisfaction of the preceptor, the apprentice is examined by a commission consisting of the district physicus and apothecary, and, if desired, in the presence of the preceptor. This examination is practical and verbal, the main aim of the former being to ascertain whether the candidate may be safely entrusted with the functions of an assistant; it consists in the reading and pricing, according to the legal valuation, of prescriptions, and the putting up of three of a rather difficult nature, and in proving his competency to perform the practical labors in the laboratory. The verbal examination embraces the fundamental principles of botany, materia medica, theoretical chemistry, natural philosophy, the recognition and terminological demonstration of fresh or dried indigenous and medicinal plants, the pharmacological determination of drugs and their adulterations, the processes, tests and doses of pharmaceutical and chemical preparations, and the legal enactments concerning the duties, &c., of assistants. Failing to pass a satisfactory examination subjects the candidate to a prolongation of his apprenticeship for six months; on failing in the third, another examination will not be granted, and the young man will have to quit following pharmacy as a pursuit.

On receiving the testimonials of the successful accomplishment of his apprenticeship and examination, he acquires the title of pharmaceutical assistant, and the right to act in this capacity. As such, he shares the responsibility of his employer for the proper conduct of the officine, except where he merely carries out the direct orders of the same. After a term of service of at least three years, not less than two of which in German officines, the assistant may enter the university course of his studies, lasting at least one year.

There are no special schools or colleges of pharmacy in Germany, since universities there are centres of all scientific branches, required for the higher professional vocations.

At the universities it is optional with the student to elect the courses of lectures and the professors delivering the same, and no inquisitive supervision or control is exercised over his attendance at

the lectures and his diligence. The pharmacist has to produce the lecture tickets on general, pharmaceutical and analytical chemistry, on botany, pharmaceutical botany, materia medica, natural philosophy, and on the practical course in the university laboratory. Besides these special branches, the pharmacists, together with the other students, attend, according to their inclination, the public lectures (publica) on sciences or branches that are of general interest, or delivered by ardent, animating professors. These lectures, the attendants of which belong to all the different faculties, are, particularly at the large universities of Berlin, Bonn, Leipsic, Munich, Breslau, Heidelberg, Goettingen, &c., very largely patronized and full of interest, from the themes as well as the lecturers.

The application for entering the university and for admission to the state examination, is made to the director of pharmaceutical studies, who, at most of the universities, is one of the professors.

The state examination—a term applied in Prussia to the last and most extensive professional examination—is held by boards appointed by the Ministry of Ecclesiastic, Educational and Medical Affairs. Until 1855 this examination had to be made by physicians and pharmacists, in Berlin, before the medical examining board (Oberexaminations-Commission).

Since that time, however, every province has been provided with such a board, composed, by appointment by said Minister of the medical and pharmaceutical councillors of the regency, of professors of the university located in the province, of physicians and apothecaries.

The examination consists of the tentamen, the course, and the final examination. Those only having passed the first two are admitted to the final ordeal.

In the tentamen the candidate must answer in writing and in clause, under the supervision of one or more of the examiners, a number of questions on chemistry, practical pharmacy, botany and materia medica. If his answers are satisfactory, he receives some chemical subject for a thesis, to complete which he is allowed several months' time, and every facility of literary auxiliaries and references, all of which have to be cited. These essays are often complete monographs, and evidence the author's acquaintance with the pharmaceutical and collateral literature as well as his literary qualification.

Meanwhile the candidate is admitted to the most comprehensive part, the course examination, consisting in a series of practical writ-

ten and verbal examinations, covering the whole field of pharmaceutical acquirements, and extending over one or several months. Among others, it includes the preparation of several pharmaceutical preparations, the execution of a qualitative and a quantitative chemical analysis of an inorganic compound, or of a mixture of, to the candidate, unknown composition, the execution of a forensic analysis of some animal or organic substance, containing one or more poisonous admixtures, and a report thereof in full, as required by and directed to a court, in order to determine the candidate's ability to act as expert in legal investigations. The verbal examination extends over the sciences of botany, pharmacognosy, general, analytical, and pharmaceutical chemistry, toxicology and pharmaceutical laws.

The final examination, which is verbal and public, and to which not more than four candidates are admitted at one time, is passed before the entire board. It comprises an interrogative survey over all the sciences auxiliary to pharmacy, and the legal relations of the apothecary.

The grades of the final course are, excellent, very good, good, and insufficient, the latter making a repetition of the examination necessary after six months; failing to pass after two such postponements is equivalent to a definite rejection.

The chairman of the board reports the entire proceedings, including the documents of application and other papers, to the Ministry of the Ecclesiastic, Educational and Medical Affairs, from which the candidate receives the certificate of qualification (Approbation as Apothecary), requisite for conducting any officine in the German empire, and for being eligible to the administrative offices of district or government apothecary, and to the appointment as inspector of pharmacies.

The apothecary's oath is administered by the district or city physician on the occasion of the purchase or lease of an officine, and on accepting the administration of one. Thereby the pharmacist engages to exercise the duties of his calling, in accordance with the laws and regulations, with fidelity and conscientiousness, and to the best of his ability.

(To be continued in the next number.)

THE PRESERVATION OF VACCINE.

The publication of the annexed letter in the Amer. Journ. of Pharmacy will accomplish three objects. 1st. It *demonstrates* the possi-

bility of keeping vaccine one year!! under mercury, as per essay of David Stewart in a recent number; the good crust referred to having been submerged *in June*, 1870, and those returned by Dr. T. being its progeny in June, 1871. 2d. It may suggest the idea that a much longer preservation is practicable; and, 3d. The postage stamp indicates a rare degree of honesty, also a more important *principle* (if possible) in such publications when made in *scientific periodicals*.

DAVID STEWART, PH. D.

Port Penn, Delaware, 24th June, 1871.

ST. GEORGE'S, June 21st, 1871.

DEAR SIR,—I enclose you three fresh vaccine crusts. The one you sent me was good, for which I am much obliged to you, and regret I did not think when I asked you to send it to me to leave a stamp to pay the postage.

Very respectfully yours,

WM. A. TATEM.

D. STEWART, M. D.

BROMIDE OF CERIUM.

BY CHARLES BULLOCK.

Having a request from a medical friend to furnish him with several ounces of bromide of cerium, the preparation of the salt was started from the oxalate, it being the only available commercial salt of cerium.

The oxalate was calcined in a porcelain capsule, over a gas furnace, with occasional stirring of the contents of the capsule, until the oxalate was converted into the yellowish brown sesquioxide of cerium, losing one-half its weight by the change.

The sesquioxide was dissolved in hydrochloric acid (with copious evolution of chlorine), and to the chloride carbonate of soda was added, which precipitated the cerium as a white carbonate, insoluble in an excess of the alkaline carbonate.

The carbonate of cerium was dissolved in hydrobromic acid, requiring nearly twice the weight of sesquioxide in bromine as hydrobromic acid for saturation.

The solution of bromide of cerium decomposes while evaporating, even at a low temperature, disengaging acid fumes. When evaporated to dryness, and pulverized, the salt has a light chocolate color, the taste is somewhat sweet and very styptic. It is very deliquescent, and dissolves to a considerable extent in alcohol of 95 per cent. The

dry salt leaves an insoluble sediment when dissolved in water; this sediment has a light gray color; when heated with oxide of manganese and sulphuric acid it does not evolve bromine; heated with dilute hydrochloric acid it dissolves quietly, without disengagement of chlorine, showing by these reactions the character of a protoxide.

As the *bromide* of cerium is new in therapeutics, we trust that the able experimenter for whom the salt was prepared will furnish us with his experience in the administration of the salt.

Philadelphia, July 10, 1871.

PRESERVATION OF TINCT. KINO FROM GELATINIZING.

By J. W. Wood, Rokeby, Del.

Among all our tinctures, perhaps there is not one so liable to deteriorate by exposure, or by long keeping, as tincture of kino, made in accordance with the U. S. Pharmacopœia; its well known property of gelatinizing in a short time—a property which yet remains to be investigated—being thereby rendered inert, precludes it from being as extensively used as its virtues would seem to warrant.

This property renders it inadmissible when we desire a reliable tincture, to prepare it in large quantities.

The pharmacopœia formerly directed it to be prepared with dilute alcohol as the menstruum; but later it was thought to be of advantage to increase the proportion of alcohol to two thirds; yet it is doubtful if there was much gained by this change.

I would therefore submit the following mode of preparation, which I consider, from the experience I have had, will meet with the desired end, and up to the present time results do not seem to disprove it. It is as follows:

R.	Kino in fine powder	℥iss
	Alcohol	℥835 f℥viiij
	Aquæ	f℥iv
	Glycerinæ	f℥iv

Mix the alcohol, water and glycerin together, and having mixed the kino with an equal bulk of clean sand, introduce in a percolator and pour on the menstruum.

This menstruum seems to thoroughly exhaust the drug of its astringent principle, and also makes a nice looking preparation.

Some which I made on the sixteenth day of July, 1870, was ex-

posed to the influence of the atmosphere, the stopper of the bottle containing it having been removed for several months, so that it had evaporated to at least two-thirds; yet it remains as good as when freshly made, without any apparent tendency to gelatinize.

The menstruum might be somewhat modified, perhaps with advantage, as, for instance, by using proportionally less alcohol and more glycerin and water, or *vice versa*. At any rate I will give it for what it is worth; adding at the same time the suggestion—and it is only a suggestion—that the same menstruum be employed in preparing tinct. catechu, which, though not so liable to gelatinize as tinct. kino, yet sometimes does so.

NOTE ON CHLORAL HYDRATE.

BY CHAS. A. BOEHME.

Some three or four months since we obtained from one of the leading drug houses in New York, a couple of pound bottles of chloral hydrate. One of these was opened as soon as received, but nothing special noted in its contents. To all appearances it was a good sample; a solution of it not being disturbed by nitrate of silver, and showing no alcohol with Lieben's iodoform test.

The second bottle was placed in a store-room up stairs, where it remained until recently securely sealed. On opening it a dense cloud of fumes was observed to issue from its mouth; this appeared out of place, so the package was set aside until the phenomenon could be investigated. After two or three days the bottle was opened again, when the fumes issued as before. These fumes had the characteristic odor of chloral hydrate, but were somewhat more stifling. They reddened moistened blue litmus paper, and became whiter and more dense when approached by a rod dipped in ammonia. With a drop of a solution of nitrate of silver, suspended in a watch-glass, they gave a white curdy precipitate. Iodized starch paper was not affected by them. Hence, I concluded they consisted, in part at least, of hydrochloric acid.

The lumps of the hydrate near the top of the bottle had crumbled to a crystalline powder. This dissolved freely in distilled water and somewhat in chloroform. In turpentine and bisulphide of carbon it was insoluble.

A portion of it was dissolved in distilled water; the resulting

solution reddened blue litmus slightly, but was unaffected by nitrate of silver. Lieben's test gave but the slightest trace of iodoform. On considering all the above reactions, I am of the opinion that the sample under examination might have been pure hydrate of chloral at first, and been decomposed by standing; whether this is true or not cannot now be told.

Since commencing the above experiments, I have received the June number of the *American Chemist*, and in it noticed Dr. Isidor Walz's article "On The Reaction of Chloral Hydrate and Sulphide of Ammonium," which led me to repeat his experiments on the sample I had in hand. A solution was made with distilled water; this was rendered slightly ammoniacal, and some yellow sulphide of ammonium (which had been in the laboratory about a year) added. The liquid became light brown, then crimson and lastly reddish brown. It deposited a precipitate, which, after washing and drying, was of a dirty yellow color. This powder was dissolved by concentrated sulphuric acid, but deposited again on dilution with water. Concentrated nitric acid oxidized it rapidly, but I could discern no volatile compound formed during the reaction. Chloroform and alcohol dissolve it partially, depositing it as a light yellow mass on evaporation. Heated in a porcelain crucible it gave off a thick yellow oil, of a disagreeable odor, and left a porous coal. Turpentine dissolved it but slightly, if at all.

I next took some freshly prepared protosulphide of ammonium, and added it to an aqueous solution of the chloral hydrate rendered ammoniacal as before. The liquid became first brown and then dark reddish brown, depositing a precipitate which was not as abundant as in the former reaction. The precipitate, when washed and dried, formed a powder of a dirty brown color. Its chemical properties were the same as those of the yellow substance obtained in the first reaction, with these exceptions: It was not oxidized as rapidly by nitric acid; the oil obtained by heating it had a more penetrating odor; its chloroformic solution, when evaporated, left a light brown resinous mass. From this we may conclude, that the two precipitates are similar, if not identical.

Dr. Walz suggests that persons having occasion to test chloral hydrate try the reaction with sulphide of ammonium, as by comparing the deportment with different samples, we may determine its value as a test for the purity of this substance.

Battle Creek, Mich., July 11th, 1871.

ON THE ACTION OF CLORIDES ON CALOMEL.

BY MICHAEL J. CUMMINGS.

(From the Author's Inaugural Essay.)

According to M. Mialhe, calomel is in part converted into bi-chloride (corrosive sublimate) and metallic mercury by muriate of ammonia, and by the chlorides of sodium and potassium. Doctor Gardner denies this assertion, and my experiments conform with this authority. Calomel is not converted into corrosive sublimate by the chlorides of the alkalifiable metals at the temperature of the body, but when raised to a temperature nearer the boiling point, it becomes in part slowly converted into corrosive sublimate. Having placed in a flask a mixture of twenty grains of muriate of ammonia, ten grains of calomel and an ounce of water, I set the flask in a water-bath heated to 70°F. and allowed it to stand at this temperature for three days. Finding no change had taken place, the calomel having remained undissolved in the bottom of the flask, I raised the temperature to 80°F.; the clear liquid was not precipitated or colored by lime water, ammonia or sulphuretted hydrogen; the remaining calomel was placed in a filter, washed with distilled water, and the filtrate still gave no indications of corrosive sublimate. I again heated a mixture of muriate of ammonia calomel and water at a temperature of 90°F., dropped into it twenty drops of muriatic acid, continued the heat for three hours, poured off a small quantity of the clear liquid and applied the tests without result. I then raised the temperature to 119°F., and allowing it to remain at this temperature for four hours, found a slight trace of corrosive sublimate; the mixture was allowed to stand until cool and then filtered. The deposit in the filter was washed with distilled water, and to the filtrate an equal bulk of sulphuric ether was added, agitating the mixture briskly for fifteen minutes. The ethereal solution was removed by means of a syphon, evaporated at a low temperature and a minute residue obtained which proved to be corrosive sublimate. Having found the precise point at which calomel will become converted into bi-chloride in the presence of chloride of ammonium, and being desirous of ascertaining the exact quantity, I heated a mixture of calomel muriate of ammonia and water in the quantities indicated above, continuing the heat at 110°F. for six hours, filtered, washed the filter with distilled water and allowed the filtrate to cool. It was agitated with an equal

bulk of sulphuric ether, evaporated and left $\frac{7}{8}$ grain of corrosive sublimate.

When chloride of sodium is used in place of muriate of ammonia, the calomel does not so readily become converted into bi-chloride, but requires a higher temperature. At 110°F. no change takes place, but when kept at 120°F. for twelve hours, the calomel becomes very slowly converted into bi-chloride. The addition of twenty drops of muriatic acid to the quantity used, seems to hasten the reaction. Calomel digested alone with muriatic acid for (12) twelve hours, at a temperature of 120°F. undergoes the same change, but is not affected at a lower temperature. With nitro-muriatic acid the change takes place spontaneously and without any elevation of temperature; raising the temperature to 110°F. does not appear to hasten the reaction.

ANALYSIS OF A SILVER ORE.

BY JOHN L. BEELER.

(From the Author's Inaugural Essay.)

At the suggestion of Dr. F. A. Genth, with whom I was studying analytical chemistry, I made an examination of a silver ore which he had received from near Austin, Nevada.

From the peculiar waxy character of some portions of the surface of the mass, I was led to the conclusion that it contained some little horn silver, and a preliminary examination revealed the presence of a small quantity of chloride of silver, together with the sulphides of silver, antimony, lead, copper and iron with some quartz.

For a quantitative analysis, I took one grm. of the finely powdered ore and fused with 3—4 parts each of sulphur and carbonate of soda. I dissolved out the soluble sulphides of antimony and sodium, by boiling with water in a small evaporating dish, and filtered to collect the insoluble residue. I precipitated the SbS_3 by HCl , filtered, washed thoroughly and oxidized by NO_5 , estimating the antimony as $\text{SbO}_4 = \cdot 1022 = \cdot 0809 \text{ Sb}$.

I dissolved the insoluble sulphides, &c., in NO_5 and filtered to separate the silica. Reserved the NO_5 solution, and as it appeared that the silica had retained a little silver, I reduced this by caustic soda and grape sugar, filtered and washed out the soda by addition of a little Ac, then thoroughly with water.

Ignited the SiO_2 and weighed.

$$\text{SiO}_2 = \cdot 2363$$

I added the last NO_5 solution to the one I had reserved, and precipitated the silver by HCl , washed, dried and weighed as AgCl .

$$\text{AgCl} = \cdot 5604 = \cdot 4217 \text{ Ag.}$$

Precipitated the copper and lead as sulphides by HS , washed, dried, oxidized by NO_5 , and separated the CuO, SO_3 from the PbO, SO_3 , by dissolving in water. Filtered off the insoluble PbO, SO_3 , washed, dried and weighed as such.

$$\text{PbO}, \text{SO}_3 = \cdot 1491 = \cdot 1018 \text{ Pb.}$$

Precipitated the copper by HS , filtered, washed, dried, ignited, oxidized by NO_5 , added a drop of SO_3 , again ignited and weighed as $\text{CuO}, \text{SO}_3 = \cdot 0240 = \cdot 0095 \text{ Cu.}$

Precipitated the iron as sulphide by NH_4S , filtered and ignited to oxidize, washed again to separate the adhering alkalis, again ignited and weighed as Fe_2O_3 .

$$\text{Fe}_2\text{O}_3 = \cdot 0216 = \cdot 0151 \text{ Fe.}$$

Estimated the sulphur by treating 1 gram. of the powder with NO_5 in presence of bitartrate of potassa to keep the antimonie oxide in solution, and estimated the sulphur as $\text{BaO}, \text{SO}_3 = \cdot 9385 = \cdot 1289 \text{ S.}$

To find the amount of chloride of silver, I treated 1 gram. with NH_4O , and after evaporating off the NH_4O reduced the AgCl by caustic soda and grape sugar, and estimated the silver in the metallic state.

$$\text{Ag} = \cdot 0071; \text{eq. of Cl.} = \cdot 0023, \text{AgCl} = \cdot 0094.$$

Summing up then, 1 gramme gave—

Elements	Combined
$\text{Ag} = 4217$	$\text{AgCl} = 00\cdot 94$
$\text{Cl} = 0023$	$\text{AgS} = 47\cdot 60$
$\text{Sb} = 0809$	$\text{SbS}_3 = 11\cdot 31$
$\text{Pb} = 1018$	$\text{PbS} = 11\cdot 75$
$\text{Cu} = 0095$	$\text{Cu}_2\text{S} = 1\cdot 19$
$\text{Fe} = 0151$	$\text{FeS}_2 = 3\cdot 23$
$\text{S} = 1289$	$\text{SiO}_2 = 23\cdot 63$
$\text{SiO}_2 = 2363$	Loss $00\cdot 35$
<hr/>	<hr/>
Total 9965	100\cdot 00

TINCTURA CINCHONÆ ET FERRI CHLORIDI SACCHARATA.

BY W. W. SEAY.

I propose the above name and preparation to the framers and revisers of our Pharmacopœia for adoption as officinal. Some such preparation is very much needed at the present time, and by making it officinal would confer a favor on pharmacists, by doing away with some of the great number of weak alcoholic and unreliable proprietary preparations, called "Elixirs," which are now flooding the country. I have the following reasons to offer in favor of making it officinal, to wit:

1st. It is almost impossible for an apothecary to keep on hand all the "Elixirs," as manufactured by the different firms.

2d. It would do away with much confusion which now exists, as to what preparation is designed by the prescription.

3d. It is a very strong preparation, and patients will get more of the properties of the bark than of alcohol.

4th. Any pharmacist can easily prepare it.

5th. I am confident it is a permanent preparation.

6th. It retains the tannic acid, coloring matter, and natural combinations apparently unchanged, at all events without any great chemical disturbance. Tonic properties can be had from it, exceeding any artificial solutions of the alkaloids.

My observations lead me to the conclusion that the protochloride is more active and less astringent than the perchloride, and in this respect will compare favorably with any other salt of iron.

I have altered the mode of preparing the protochloride, so that nearly all exposure to the air is avoided, and a perfectness insured in the hands of the most inexperienced operator. In order to designate this preparation from the preceding one published by me and termed SOLUTION PROTOCHLORIDE IRON, I propose for the name of this syrup Ferrous Chloride.

I sincerely hope and respectfully request that some of our best pharmacists will give this preparation a trial and report their results to the *Journal*. If any aromatic tincture be desired in combination, it can be added, by first dissolving one avd. ounce of powdered white sugar to each fluidounce of that tincture.

If the quantity of iron be deemed unsuitable to meet the requirements of every-day practice, the difficulty can be overcome by making

the tinct. cinch. sacch. and the syr. ferrous chloride each officinal separately, to be combined as occasion requires, and in quantities to meet each case.

Tinctura Cinchonæ Saccharata.

Cinchonæ Rubræ, in fine powder, four troyounces.
 Alcoholis Fort.,
 Syrupi, aa q. s.
 Alcohol. Dil. (Alcohol. p. 3, Aquæ p. 1), one and a half fluidounces.

Moisten the cinchona with the dilute alcohol, and pack in a glass funnel, in the neck of which sufficient tow (free from tar) has been placed to act as a filter; cover the surface with a piece of perforated paper, and pour on alcohol previously mixed with an equal volume of syrup until it has reached the tow and the surface of the powder is covered; cork the neck of the funnel and allow it to macerate forty-eight hours; then remove the cork and continue the percolation with equal parts of alcohol and syrup mixed, until sixteen fluidounces have been obtained.

Or,

Cinchonæ Rubræ, in fine powder, . four troyounces.
 Alcohol. Dil., . . q. s.
 Sacch. Alb. Pulv., . . eight avd. ounces.

Moisten the cinchona with f3iss of dilute alcohol, and pack in percolator (with tow in the neck to act as filter), and pour on dilute alcohol until twelve fluidounces have been obtained; then dissolve the sugar in the tincture by agitation.

This contains fifteen grains red Peruvian bark in each fluidrachm. I prefer the first process for exhausting the bark, for the reason that the alcohol is stronger, being diluted with syrup instead of water.

Syrup of Ferrous Chloride.

Ferri Sulphatis,	.	.	.	grains	437½,
Barii Chloridi,	.	.	.	"	386,
Acidi Sulphur. Dilut.,	.	.	.	minims	10,
Sodæ Sulphis,	.	.	.	grains	5,
Syrupi,	.	.	.	fluidounces	2,
Aquæ Puræ,	.	.	.	"	1,
Acidi Hydrochloric,	.	.	.	fluidrachms	1.

Place the sulphate of iron, sulphite of soda, and dilute sulphuric acid in a chemical flask, with one and a half fluidounces of the syrup, previously heated to near the boiling point, and continue the heat until solution is effected. Place the chloride of barium, remainder of syrup, and the water in another chemical flask, and apply heat until solution is effected. Now pour the two solutions together, mix thoroughly by agitation for a few minutes, and throw the whole upon a paper filter in a glass funnel, arranged in such a manner that it may be kept hot. When the ferrous chloride has filtered through, test a small quantity with a drop of solution of ferrous sulphate; if a white precipitate occurs, a few more grains of sulphate of iron must be added and refiltered; then add the hydrochloric acid and fill into four-ounce vials for further use.

This syrup contains the same amount of *metallic* iron, minim for minim, of the tinct. ferri chloridi, U. S. P.

Tinctura Cinchonæ et Ferri Chloridi Saccharata.

Tincturæ Cinchonæ Sacch.,	.	.	.	Oj.
Syr. Ferrous Chloride,	.	.	minims	160.
Acid Hydrochloric,	.	.	"	160.

This contains 120 grains of red bark and 10 drops of syr. ferrous chloride to each fluidounce. If it be desirable to mix in any other proportion, add one measure of hydrochloric acid for each measure of syr. ferrous chloride. This is a deep red, clear tincture, rather pleasantly bitter; if any doubt exists as to whether it has blackened, add dilute alcohol to a small quantity, until it becomes transparent enough to observe it thoroughly.

New York, July 18, 1871.

GLEANINGS FROM THE GERMAN JOURNALS.

BY JOHN M. MAISCH.

The Oil of Grapeseed has been analyzed by A. Fitz. It consists of the glycerin compound of palmitic, stearic, erucic and another acid or acids, yielding soft semiliquid salts with barium and lead. The two first named acids are present in very small proportion; erucic acid constitutes about one-half of the acid mixture. Grapeseed contain 15 to 18 per cent. of fixed oil, and 5 to 6 per cent. tannin;

the latter in connection with isinglass is an excellent material for the clarification of the finer wines, for which the ordinary tannin cannot be used.—*Ber. d. d. Chem. Gesellsch.* 1871, 442—446.

An Analysis of a Himalaya Tea has been made by Ph. Zöller. The tea had been presented to Prof. Liebig, and consisted of very young leaves. It contained 4.95 per cent. water and 5.63 ashes, of which latter 39.22 per cent. was potassa, 14.55 phosphoric acid, 4.38 oxide of iron, 1.03 oxide of manganium, and only 4.24 lime. The air-dry tea yielded ammonia equivalent to 5.38 per cent. nitrogen, and besides 4.94 theina a small quantity of a crystalline compound of the behavior of *theobromina*. By infusion with boiling water, 36.26 per cent. dry extract was obtained, containing nearly the entire amount of potassa, very little lime, almost two-thirds of the nitrogen, nearly one-half of the phosphoric acid, and one-third of the iron and manganese. The author shows that exhausted tea leaves, which are often used for adulterating tea, can be readily recognized from the amount and the composition of the ashes, and argues that in old tea leaves the relative proportion of the inorganic constituents is altered so that the potassa and phosphoric acid decrease while lime is increased in quantity.—*Ann. d. Chem. und Pharm.* 1871, *May*, 180—193.

Manufacture of Starch Syrup and Starch Sugar.—Carl Krötke publishes his method for converting starch into glucose, whereby the usual time is shortened to one-half. It consists in adding for every pound of sulphuric acid employed two ounces nitric acid. The usual proportions are 30 cwt. fresh moist starch, 30 lbs. sulphuric and nitric acids. The boiling is continued until tincture of iodine ceases to produce a purple or red, but rather a rum color. If the boiling is discontinued before, the syrup will ferment; if continued for 10 or 15 minutes longer, the sugar will crystallize.

The bleaching of the syrup is effected by bone charcoal, in addition to which sulphurous acid is now also employed. The acid is removed by soda and chalk.

To obtain block sugar (glucose in boxes), 50 per cent. more of the two acids is employed; when the conversion of the starch into sugar has been effected, the boiling is continued for the same length of time. For the quantities given above, 15 lbs. of bone charcoal are added, and the boiling continued for 5 minutes. The mixture is drawn into another vat, and neutralized with chalk. The following additions are

then made: 30 lbs. bone black, 15 lbs. sulphurous acid, and finally 1 lb. crystallized soda. After 6 or 8 hours the clear liquid is drawn off and evaporated *in vacuo* to 36° B., when it is filtered through close muslin. The gypsum remaining on the filter is washed with water and the liquid added to the neutralizing vat.

The filtered syrup crystallizes in 3 to 4 days; the crystallization is hastened by adding some cane sugar after the syrup has cooled down to 25 or 30° R., and stirring occasionally. On the second day it has crystallized sufficiently to be drawn off into boxes, wherein it will become quite hard in a day.—*Pharm. Post*, 1871, No. 11.

Tinctura Rhei Aquosa.—Dr. Th. Rieckher recommends the following process for obtaining a permanent aqueous tincture of rhubarb, the processes of the various pharmacopœias used in Germany, yielding preparations which in a short time separate deposits: 2 parts of cut rhubarb are macerated for 24 hours with a sufficient quantity of water, then introduced into a glass percolator and displaced with water until 48 parts of infusion have been obtained. This is evaporated in a porcelain capsule, by means of a steam-bath, to 13 parts, when 1 part crystallized carbonate of soda and two parts of cinnamon water are added. After several days the tincture is passed through a felt filter, and now has the specific gravity 1.0400.—*N. Jahrb. f. Ph.* 1871, March, 142—146.

Attar of Rose is, according to Grund, of Breslau, often adulterated with alcohol, which raises the congealing point of the attar. The adulteration is detected by agitation with lukewarm water in the usual manner.—*Ibid.*, 165.

Castor Oil.—O. Popp has observed that castor oil turns polarized light to the right, and differs in this respect from all other fats. He also found all the commercial castor oil to contain nitrogen, and finds in these facts supports of his previously expressed opinion, that the purgative properties of this oil are due to a nitrogenated body, probably an alkaloid.—*Archiv d. Pharm.* 1871, March, 233, 234.

Urea a Constituent of Bile.—O. Popp has found urea in beef and hog gall, as a normal constituent. The gall is diluted with water, precipitated by subacetate of lead, the filtrate treated with sulphuretted hydrogen, and evaporated to dryness. The dry mass consists

principally of acetate of soda and urea. It is repeatedly treated with absolute alcohol, and this liquid kept in a high beaker glass for several days, when the urea creeps up on the sides of the vessel, crystallizing in its characteristic forms above the surface of the liquid.—*Ibid.*, 234—236.

OINTMENT CONTAINING MUCH WATER.

BY JOHN H. EHLERS.

The following recipe was recently handed to me to be filled:

R.	Pyroligneous Acid,				
	Sulphur, each	.	.	.	4 ozs.
	Calomel,	.	.	.	60 grs.
	Red Precipitate,	.	.	.	40 "
	Spts. Turpentine,	.	.	.	1½ oz.
	Lard,	.	.	.	4 " M.

I first intimately mixed the calomel and precipitate, then by degrees the sulphur, the turpentine, and finally a small portion of the lard. I now added a little, say two fluidrachms of the acid, but entirely failed to get a mixture. As the acid is largely composed of water, the object was to dispose of the latter so that it might not interfere with the mixture. This was done by adding to the salve in the mortar a little wheat flour, with perfect success, after which lard, flour and acid were added alternately until the ointment was finished, leaving out of it as much lard as flour had been substituted. Four hours afterward, the ointment not having been called for yet, and the weather being very warm, it was found that some of the lard had melted, and was floating on the top, but readily mixed with the ointment again on making use of a spatula, but no part of the acid at any time separated from it.

Auburn, Ind., July 14, 1871.

TINCTURE OF HYOSCYAMUS.

BY M. DONOVAN.

Some years since I published, through the medium of the *Medical Press*, an account of trials made on myself and others, with a view to discover what doses of tincture of hyoscyamus should be given in

order to produce its sedative effects. The experiment was made on several persons, beginning with a drachm dose, increasing it to six drachms, and in my own case to one ounce, of the tincture of the Dublin Pharmacopœia. In no case were any effects observed beyond dryness of the throat and fauces. The experiments were made with tinctures prepared from the dried leaves of garden-grown plants, from wild plants collected in a mountainous district of North Wales, and from the leaves dried and undried.

I was under the impression that some of the plants employed in making the tinctures on which I experimented were in the second year of their growth, but the trials now to be described have convinced me that none of them could have been more than one year old. At that time I was not acquainted with the means which I have since discovered of testing the age of the plant.

I satisfied myself by these experiments that tincture of hyoscyamus prepared, as I believe it generally is in this country, from leaves of one year's growth, is all but powerless. I was strengthened in this opinion by finding that M. Hertz has given upwards of fifteen grains of the extract, most probably made from the plant in its first year, without any sensible effect.

Mr. Houlton had long before affirmed the inertness of the one-year old plant, and the activity of that of two years old.

In order to come to some determination on this subject I adopted means of procuring a tincture certainly made from the latter, and from trials with it soon convinced myself that it was an article of very different value from a tincture of the one-year old plant, and that all my former experiments must have been made with the latter, although I was led to believe that, in some of them, the plant of two years' growth had been used.

My first trial was on myself. I took one drachm, and for an hour or two felt no effect beyond dryness of the mouth. On a subsequent occasion I took two drachms, and in two hours had proof that I had taken a sufficiency. My sensations were indescribable: one was a feeling of uncertainty of my steps in walking, although they were really quite steady, and a slight sensation of giddiness. This trial convinced me that I had taken as full a dose as prudence would permit. To a lady who suffered from headache I gave, at her own request, one drachm of this tincture. In about two hours she felt so overcome by sleepiness that she could scarcely keep her eyes open ;

the headache was, however, greatly relieved. On another occasion she took a similar dose, and, being in bed, she soon fell into "a delightful sleep," and, on awaking, found that the headache was almost gone; but she complained of dryness of the fauces and throat, although on the first occasion she did not experience either of these effects. Some months after the same lady suffered from headache, and did not receive any benefit from a similar dose; nor did another person experience any relief from toothache nor any other effect beyond slight dryness of the fauces, which soon passed off.

Convinced by the foregoing considerations that the medicinal properties of hyoseyamus reside exclusively in the plant of two years old, and that the plant of one year's growth is therefore useless, I sought to discover an easy test by which the age of the plant from which a given tincture had been prepared could be determined. The following has at least the advantage of simplicity: Add a little of the tincture to a glass of water; if the mixture become slightly milky, the tincture was made from a two-year old plant; if it remain transparent, the plant was in its first year.

The British Pharmacopœia gives no information as to what shall be the age of the hyoseyamus from which the tincture is to be made; it is, therefore, a matter of chance whether it will have any effect or be powerless. Given in the dose of twenty or thirty drops, as is sometimes done, it is hard to believe it can have any effect in either case.—*Pharm. Journ.*, May 13, 1871, from *The Medical Press and Circular*.

SOPHISTICATION OF EXTRACT OF MALT.

Messrs. J. M. Hirsh & Co. publish in the July number of the *Pharmacist* a reply to the charge made by Mr. Clacius concerning the sophistication of their extract of malt. Mr. Clacius' paper having been published on page 317 of the last number of this journal, we make the following extract from the rejoinder, and refer to page 331 of the July number in regard to the term *Liebig's Extract of Malt* used in Mr. Hirsh's answer. That the odor of *all impure glycerin* is produced by acroleine is an incorrect statement, as the examination of the cheaper commercial qualities of glycerin will show:

"While we are as German as Mr. Clacius, we shall ever cherish the recollection of Napoleon and his great Industrial Exhibition—

the greatest that any of us recollects, and at which we were honored with that distinction which gives us *a right* to use Napoleon's vignette on our preparations.

"Before having the same on our labels, we sold a great deal of Extract of Malt to customers who indicated their satisfaction by continuing to favor us with their patronage up to date; and we did by no means use it to pretend merits not contained in the preparation itself. We not only desire, but are anxious, to see criticism upon our preparations. But how can we like it, if the critic (as Micawber says) is not a critic, acknowledging in his very critical article, 'that it is difficult to give an exact test for the purity of extract of malt.' From the fact that, heated in an iron spoon, our Extract yielded to Mr. Clacius the odor of impure glycerin, the deduction is made that impure glycerin is used for the preservation of the Extract.

"Mr. Clacius ought to know that the odor of all impure glycerin is produced by acroleine, generated by exposure to a high temperature, and that the very purest glycerin, placed over a spirit lamp, will yield acroleine. He ought to know, furthermore, that acroleine, as also the nitrogen derivatives, produced by the heating of the albumen of the extract of malt, being more volatile, will cover up the odor of caramel to a large extent; and if he, as he condescends to approve of, adds one-eighth part of glycerin to the extract, he will always obtain the odor of acroleine, if the extract of malt is otherwise pure. If, on the other hand, 'a very large yield' of extract is obtained from the malt, which then miraculously contains some cane-sugar, as we found in some extract made by a druggist in this city, then the odor of caramel will predominate. Sugar of any kind being present, in but a small quantity, in good extract of malt, if the conversion is carried on properly, not too far, when the odor of caramel cannot be very intense.

"When we commenced making extract of malt, we made it pure. But during the following hot season we added, after consultation with some prominent druggists of this city, some glycerin, to prevent fermentation, the glycerin being of at least as good a quality as the best in Mr. Clacius' store. At that time we made some extract of malt which did not suit us as a perfect preparation, but upon solicitation of some of our customers.

"We published our objections to this preparation, which, nevertheless, was wanted in that very state, in the November number of *The*

Arts, page 66, where we state that gradually only we are enabled to displace from the market the burnt extract with a more pleasant preparation.

"If we recollect right, Mr. Clacius has not bought of us any extract of malt for over a year or more, and we are therefore surprised at his statements, in contradiction of which we insist upon establishing the following points:

"1. That any person can drink one or two pounds of our Liebig's Extract of Malt with comfort, and without nausea, of which Mr. Clacius complains.

"2. That our Extract of Malt is *extract of malt, made from malt*, in contradiction to the false insinuation of Mr. Clacius.

"3. That our Extract of Malt contains *no glycerin whatsoever*, although we warrant it to keep unfermented throughout the summer. Having found a proper mode of preserving it unfermented without the addition of any foreign substance, we abandoned the use of glycerin in this instance a considerable time ago.

"All these points we insist upon Mr. Clacius to decide by a committee of twelve of the best druggists, or druggists and physicians, of Chicago, *all to be chosen by himself*.

"As soon as these points are established, we shall tell Mr. Clacius 'how an *exact* test of the purity and general quality of an extract of malt can be made,' which, in his article, he acknowledges too difficult for himself, or, in other words, which he acknowledges he cannot do, while at the same time he undertakes to palm off upon your readers his critique, based upon facts which he acknowledges himself unable to establish."

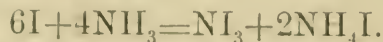
NOTICE ON THE DECOLORIZATION AND DEODORIZATION OF TINCTURE OF IODINE.

BY JAMES LAKER MACMILLAN.

Within the last year or two an unusual degree of attention has been devoted to methods for decolorizing tincture of iodine. The agent commonly resorted to for this purpose is ammonia; a practice which cannot be too highly censured, inasmuch as a change takes place which is highly detrimental to its medicinal properties. By the addition of ammonia to this tincture, one or more compounds of iodine and nitrogen are formed, which are thrown down in the state of a

black precipitate, which is redissolved after standing for a number of hours, or by the addition of carbolic acid.

The reaction is as follows:—



Thus, it will be seen that the use of ammonia for this purpose is detrimental to the medicinal efficacy of the iodine; and that when such so-called tinctures prepared by this process are substituted for the tincture proper, the physician unwittingly uses a solution of the above compound. To rectify this error is the object of this notice; to which I append the following simple, though none the less noteworthy processes, for the consideration of the pharmaceutical body at large.

Process No. 1.—Potassium acetate ($\text{KC}_2\text{H}_3\text{O}_2$) 2.59 gram., with 7.7 gram. solution of KHO , having a specific gravity of 1.06, at 15.55°C ., are capable of decolorizing 2.592 decagrams of tincture of iodine, B. P.

Process No. 2.—A similar reaction is manifest if treated with a solution of NaHO , having a specific gravity of 1.07 at 15.55°C ., in the proportions of 5.3 decigrams of the sodium solution to 3.6 gram. of the tincture.

[We believe these preparations (introduced by the late Sir James Simpson) should not be decolorized, since that cannot be done without interference with the medicinal efficacy of the iodine.—ED. PHARM. JOURN.]—*Lond. Pharm. Journ.*, June 10, 1871.

EXTRACT OF MEAT.

The “*Extractum Carnis*” known as Liebig’s, is now extensively employed in medical practice. Now and then doubts are expressed relative to the nutritive value of the commercial extracts, and, occasionally, undesirable effects follow their administration. It is well known that the extract, whether prepared in the open air by the Liebig process, or *in vacuo* by the Borden method, can contain no albumen. The albumen is coagulated, and therefore excluded during the manufacture, so that the extract consists, as shown by E. Reichart’s analysis, of

Water separable at 110°C .,	.	.	.16
Mineral constituents,	.	.	18.20
Nitrogen,	.	.	9.51

The extract is rich in potassium salts.

Dr. Kemmerich has recently published in *Schmidt's Jahrbücher*, a detailed account of the physiological effect. An estimate of the nutritive value of the extract just referred to is given.

He found by experiments on living animals, that extractum carnis in the form of soup, also meat broths and gravies of ordinary concentration, and free from seasoning, produce in the stomach active hyperæmia of its mucous membrane, especially at the gastric follicles. Hence, he concludes that extract of meat increases the activity of the follicles and hastens the secretion of gastric juice.

There is, moreover, a noticeable change in the character of the cardiac pulsation. The throb becomes more frequent, much stronger, arterial tension is increased, the pulse is made full and more rapid. He noticed also that a person by taking a little over one hundred grains of meat extract in the morning, experiences a slight elevation of temperature of the body above that of another person in substantially the same condition, and this elevation is followed by a corresponding depression.

The increase of temperature may be attributed to the increased circulation of the blood and consequently augmented oxidation of the tissues.

The extract of meat affords nutriment, but its improper use may be very injurious.

Dr. Kemmerich's study of the nutritive value was conducted by means of experiments on two dogs of the same birth and weight, subjected to the same vital conditions. To the food of one the mineral salts of meat extract were added, to the food of the other an equal quantity of common salt. The food was for both "animal albumen" separated from the aqueous solution of the muscle of the horse. The dog fed on the meat extract and albumen soon weighed more than the other. In the course of six weeks the dog fed on salt was hardly able to stand, while the other was bright and energetic.

The conditions were then reversed, with very remarkable results. In a fortnight the reduced dog was fully restored, and in four weeks excelled the other in bodily vigor.

Dr. K. concludes that the extract of meat is a true restorative stimulant, like alcohol in the stimulant dose, with the further advantage of affording elaborated material for the formation of tissues.—*Bowdoin Scientific Review, Brunswick, Me., May 9, 1871.*

ON SPECTRUM ANALYSIS OF BLOOD-STAINS.

BY H. C. SORBY, F.R.S., &c.

The *Lancet* of last Saturday (May 20th, 1871, p. 693) contains an article on the above-named subject, the whole bearing of which is to the effect that this method cannot be relied upon in such inquiries. Now, I think myself entitled to express a very decided opinion on the subject. I have for some years devoted the greater part of my time to investigations by means of the spectrum-microscope, have examined many hundred different spectra, and seen those of the coloring matter of blood and of the various compounds derived from it, times without number, and all that I can say is that, as my experience has increased, so much more has increased my confidence in the recognition of blood by this method. Of course, an inexperienced observer could not be trusted, no more than any one ignorant of chemistry could be relied on in detecting poisons. I must be pardoned for saying that I can only explain the remarks in the *Lancet* by supposing that the writer is not conversant with the subject; for how otherwise could he say that "no discovery has yet been made by means of these (absorption) spectra," when so much light has been thrown on the behaviour of blood in presence of oxygen and other gases; and when there have been discovered in some of the lower animals, other substances than hæmoglobin, having similar properties, and supplying its place, besides some hundreds of different coloring matters in animals and plants, which could not have been studied in any other manner. Moreover, it appears to me that, if the writer ever saw the spectra of blood, it must have been under most unfavorable circumstances; he must have examined a bad preparation, with an unsuitable instrument, perhaps out of focus. I cannot otherwise understand how he could say that "all that is to be observed is a little *dimness* here and there in the spectrum. The dim spaces, which are not sharply bounded, have been dignified with the name of absorption bands." Now, I would undertake to show the writer in a few minutes, that the absorption bands seen in the spectra of oxidized hæmoglobin and deoxidized hæmatin, instead of being a mere *dimness*, are as black and distinct as could be desired. He would see that they are as well defined as if we had a piece of a rainbow on paper, and marked bands on it with the blackest ink. I willingly admit that, in the case of some substances, absorption bands are indeed faint, or

quite absent; but that fact, amongst many others, only serves to distinguish them still more certainly from blood.

My general conclusion is that it is the fault of the experimenter himself, if, except in a few special cases, he fails to recognize a blood-stain containing only the hundredth of a grain of blood, and if he do not easily recognize one that has been kept dry, even for a period of fifty years. For a description of the method to be employed in various cases, I refer to my paper on this subject in *Guy's Hospital Reports*, 3d series, vol. xv., 1870, p. 274, and to Dr. Letheby's paper in the third volume of the *London Hospital Reports*. Of course, I do not pretend to say that human blood can be thus distinguished from that of other animals, but I unhesitatingly say *that we can distinguish blood from all other animal and vegetable coloring matters.*—*The Medical Press*, May 31, 1871.

NOTES ON BIRD OILS.

By P. L. SIMMONDS.

Among the animal oils or fats, that of birds has been the least investigated, probably because it is so seldom met with in commerce, and yet there are some quarters where various kinds have economic and medicinal uses. Goose grease is perhaps the only one which with us has a domestic reputation as an emollient for chapped hands, etc. As Mr. Stanford has recently drawn attention to the fulmar oil in the *Journal*, a few notes as to the uses and commerce in other oils or fats from birds may probably lead to further investigations and a careful examination of any useful properties they may possess.

The Penguin (*Diomedea chilensis*) in the Falkland Islands is chiefly sought after for its oil, deriving its name from its pinguidity or excessive fatness. On the islands of the Falkland group these birds are found in millions, and schooners, with a gang of twelve or fifteen men, go there solely for boiling down the oil of the birds. The fat of eleven birds skimmed gives about one gallon of oil, and each schooner or gang of men will return to Stanley, after a month or six weeks' campaign, with from 25,000 to 30,000 gallons of oil. This oil, which comes chiefly to London, is used, I believe, for currying leather only. I have sent Mr. Stanford and the museum of the Society specimens of this oil. It varies in color according to the time it has been boiled.

Another bird oil largely sought for in the islands of Bass's Straits and New Zealand, is from what is called locally the mutton bird (*Procellaria obscura*). Large quantities of oil are obtained from the young birds. The body is pressed and the oil runs from the mouth, each bird yielding about half a gill. The oil is reputed to possess considerable virtue as a liniment in cases of rheumatism. The fat, when clean, is pure white and looks like goose fat, but the taste is rather oily; however, it may be used for a good many purposes other than for food. It burns very well in small, shallow tin lamps, which get warmed by the light and melt the fat.

Father Labat (Nouv. Voy. tome vi. p. 395) speaks of the virtues of the grease or fat of the frigate bird. It is said to be an admirable specific in the sciatica, and in numbness of the limbs and other ailments arising from a want of circulation. The grease is to be heated, and while it is on the fire, the parts affected are to be well rubbed and chafed in order to open the pores, and some good brandy or spirits of wine are to be mixed with the fat immediately before it is applied. A piece of blotting paper steeped in this mixture may be laid on the part, with compresses and a bandage to keep it in its place.

Mother Carey's chickens (*Procellaria pelagica*) are killed in quantities at the Western Islands for their oil. They are so plump that the islanders merely draw a candle-wick through the body, and it becomes so saturated with the liquid fat as to form a lamp without further process.

Ostrich fat has much local repute. The first care of the sportsman after securing his bird, is to remove the skin, so as to preserve the feathers uninjured; the next is to melt down the fat and pour it into bags formed out of the skin of the thigh and leg, strongly tied at the lower end. The grease of an ostrich in good condition fills both its legs, and as it brings three times the price of common butter, it is considered no despicable part of the game. It is not only eaten with bread and used in the preparation of kooskoos and other articles of food, but the Arabs reckon it a valuable remedy in various maladies. In rheumatic attacks, for instance, they rub it on the part affected till it penetrates thoroughly; then lay the patient in the burning sand, with his head carefully protected. A profuse perspiration comes on, and the cure is complete. In bilious disorders, the grease is slightly warmed, mixed with salt and administered as a potion. It acts thus as a powerful aperient, and causes great emaciation for the

time; but, according to the Arabs, the patient, having thus been relieved from all the bad humors in his body, afterwards acquires robust health and his sight becomes singularly good.

The grease of the emu, or Australian ostrich (*Dromaius Novæ-Hollandiæ*) is held in great esteem by both colonists and natives as a cure of bruises and rheumatism. The skin of the bird produces six or seven quarts of a clear, beautiful, bright yellow inodorous oil. The method of obtaining the oil is to pluck the feathers, cut the skin into pieces and boil it.

At one of the Madras Industrial Exhibitions, oil from peacocks' fat in Tinnevely was shown, but it was not stated to what use it was applied.

In South America, in the immense cavern of Gaucharo, in the government of Cumana, Humboldt describes an extensive pursuit carried on of a bird for its fat by the Indians. This cave is peopled by millions of nocturnal birds (*Steatornis caripensis*) a new species of the *Caprimulgus* of Linnæus. About midsummer the young birds are slaughtered by thousands. The peritonæum is found loaded with fat, and a layer of the same substance reaches from the abdomen to the vent, forming a kind of cushion between the hind legs. Humboldt remarks that this quantity of fat in frugivorous animals not exposed to the light, and exerting but little muscular motion, brings to mind what has been long observed in the fattening of geese and oxen. It is well known, he adds, how favorable darkness and repose are to this process. The fat of the young birds is melted in clay pots over a brushwood fire. It is half liquid, transparent, inodorous, and so pure that it will keep above a year without turning rancid.*

The passenger pigeons (*Columba migratoria*) of North America are another source of oil. They migrate at certain seasons in millions, and the Indians, watching their roosting-places in the forests, knock them on the head in the night and bring them away by thousands. The Indians preserve the oil or fat, which they use instead of butter. There was formerly scarcely any little Indian village in the interior where a hundred gallons of this oil might not at any time be purchased. The squabs, or young pigeons, when taken in quantity, are also melted down by the settlers as a substitute for butter or lard.—*The Pharm. Jour. and Trans.* June 17, 1871.

* Bonnycastle's 'South America.'

A NEW SPECIES OF *ERYTHRONIUM*.

BY PROFESSOR ASA GRAY.

Ordinarily it is hardly worth while to make a separate article for a single new species of plant, even when discovered in a district in which a new flowering plant is unexpected. But the species of *Erythronium* are so few, and the present one is so peculiar, and its habitat so closely bordering the region included in my Manual of the Botany of the Northern United States, that I need not apologize for bringing it at once to notice.

The specimens before me, accompanied by a colored drawing, are just received from Miss S. P. Darlington (a daughter of the late Dr. Darlington, long the Nestor of American botanists and one of the best of men), and were collected at Faribault, Minnesota, by Mrs. Mary B. Hedges, the teacher of Botany in St. Mary's Hall, a school of which Miss Darlington is Principal.

The flower is much smaller than that of any other known species, being barely half an inch long; and its color, a bright pink or rose, like that of the European *E. Dens-Canis*, reflects the meaning of the generic name (viz. red), which is lost to us in our two familiar Adder-tongues, one with yellow, the other with white blossoms. The most singular peculiarity of the new species is found in the way in which the bulb propagates. In *E. Dens-Canis* new bulbs are produced directly from the side of the old one, on which they are sessile, so that the plant as it multiplies forms close clumps. In our *E. Americanum* long and slender offshoots, or subterranean runners, proceed from the base of the parent bulb and develop the new bulb at their distant apex. Our Western *E. albidum* does not differ in this respect. In the new species an offshoot springs from the ascending slender stem, or subterranean sheathed portion of the scape (which is commonly five or six inches long), remote from the parent bulb, usually about mid-way between it and the bases or apparent insertion of the pair of leaves; this lateral offshoot grows downward, sometimes lengthening as in the foregoing species, sometimes remaining short, and its apex dilates into the new bulb.

This peculiarity was noticed by Mrs. Hedges, the discoverer of this interesting plant, to whom great credit is due. Most lady botanists are content with what appears above the surface; but she went to the root of the matter at once. I learn that *E. albidum* abounds in the

same locality. *E. Americanum* is also found in the region, but is scarce.

It is not easy to find or frame a specific name which will clearly express the most remarkable characteristic of this new species. But I will venture to name it

ERYTHRONIUM PROPULLANS.—*E.* scapo infra folia pullulante; foliis oblongo-lanceolatis acuminatis parum maculatis; perianthio roseo-purpureo (semipollicari), segmentis acutis basi luteo tinctis omnino planis (nec calloso-dentatis nec sulcatis); antheris oblongis; stylo fere equabili integerrimo; stigmatе parvo vix tridentato; ovulis in loculis 4—6.

Scape bulbiferous from its sheathed portion below the developed leaves; these oblong-lanceolate, acuminate, slightly mottled; perianth rose-purple or pink (half an inch long); the segments acute, all with a yellow spot but plane at the base, the inner like the outer destitute of either groove or tooth-like appendages, but a little more narrowed at base; anthers merely oblong; style hardly at all narrowed downward, entire, the small stigma even barely three-lobed; ovules few (4—6) in each cell.—*Amer. Naturalist*, July, 1871.

ON A RARE FORM OF POISONING BY QUININE.

By A. BRAYTON BALL, M. D.

The more common symptoms of quinism, such as headache, tinnitus aurium, vomiting, prostration, etc., are familiar to every physician, but the occurrence of an erythematous rash, accompanied by œdema, and extending over the whole body, followed by desquamation, is so rarely a toxic effect of quinine that I have not found any mention of it by such systematic writers on materia medica as Headland, Wood, Stillé, Beck, Biddle, Waring, Royle, Trousseau and Pidoux.

Briquet, in his monograph on quinine,* quotes Chevallier as having observed that workers in quinine were liable to various cutaneous eruptions; but this effect is ascribed by Briquet to local irritation by the drug. In his numerous experiments, the author noticed no special effect upon the skin, except a very constant diminution in its temperature. Riliet and Barthez record a case of desquamation, and Bouchut a roseola following the use of medicinal doses of quinine.

* *Traite Thérapeutique du Quinquina et de ses Préparations.* Paris, 1853.

The case which is the subject of this article occurred about a year since, in the practice of a physician of this city, who has kindly given me the notes from which the account is compiled. I am convinced that this form of quinism occurs more frequently than might be supposed from the fact of its having been overlooked by systematic writers on *materia medica*. My object in publishing this case is to elicit similar reports from others, and thus to secure the recognition of such accidents by our text books on this subject.

On April 15th, 1870, Mr. A., a merchant of this city, who had previously enjoyed good health, was taken ill with febrile symptoms which lasted five days, and were thought by his physician to be of a malarial nature. In accordance with this view, quinine was prescribed in the form of two-grain sugar-coated pills, of which the patient took three on April 22d, two days after perfect recovery from the previous attack. On retiring at night, Mr. A. noticed that his hands were beginning to swell, and soon experienced severe burning and itching, which deprived him of rest. Towards morning, the feet became similarly effected. When seen on the 23d inst., the hands and feet were swollen and erythematous, the eruption being most conspicuous on the palms and soles, extending to the wrists and ankles, marked by a sharply-defined border, and resembling the eruption of scarlatina. There was no febrile disturbance, and the patient expressed himself as feeling very well, with the exception of the annoyance from the burning and itching. During the following day, the rash extended over the whole body, and on the fourth day the cuticle of the hands and feet began to desquamate. Desquamation shortly ensued upon the trunk and limbs. The cause of these singular symptoms being entirely unsuspected, the quinine was ordered to be resumed on April 30th, and the same night, after having taken three pills (six grains), the patient experienced toxic effects of still greater severity, viz., high fever; pains in the limbs; tongue heavily coated, clearing in a few hours to a dark red color; burning and pricking of hands and feet, with a return of the swelling and rash, which eruption extended over the trunk and limbs, and was followed by a second desquamation. From this second attack he failed to convalesce quickly, and went into the country, remaining there about a fortnight, during which time, although (so far as can be ascertained) he took no more quinine, he occasionally suffered from burning and itching in his hands and feet, and on one or two occasions there was a slight return of the rash.

On Monday, May 23d, having returned from the country in good general health, he took two more pills (grains 10) on his own responsibility, one at noon, and the other shortly before dinner. While eating his dinner he experienced a peculiar tingling sensation in his tongue, which, in a few minutes, became so swollen as to interfere with articulation and deglutition. This symptom was soon followed by a rapid pulse, heat of skin, mental excitement, and incessant muscular tremors. The hands swelled, assumed the classical boiled-lobster hue; in short, he was again ill for four or five days, and desquamation ensued for the third time. The quantities of quinine stated as taken are accurately given, and a subsequent examination of the pills remaining in the box showed that they contained only the sulphate of quinine with a little cinchonine and the usual sugar coating. As if to leave no doubt as to the relation between the symptoms and the cause assigned, it has been ascertained that Mr. A. had a similar attack about six years ago, which was regarded by his physician as scarlet fever, and that the attack came on after he had taken a few doses of the tincture of bark, which had been prescribed for him as a tonic.

I have been able to find but three cases recorded in full, which resemble that of Mr. A. They all appeared in the *British Medical Journal* of 1869 and 1870.—*N. Y. Med. Gaz.*, vii, 88, 89.

LABORATORY NOTES.

By E. B. SHUTTLEWORTH.

Utilization of Residue in making Tincture of Myrrh.—In preparing this tincture by the directions of the British *Pharmacopœia*, a residue of about two-thirds of the original amount of myrrh remains. This consists almost entirely of gum or arabin, as the spirit of 84 per cent., used for percolation, exhausts the myrrh of resin and essential oil, leaving the gum, with the ordinary mechanical impurities, as sand, bits of wood, bark, &c. It occurred to the writer that this might be utilized as mucilage; and to put the idea into execution, the residue of the percolation of 52 pounds—the quantity required for 50 wine gallons of the tincture—was dissolved in boiling water, strained, and allowed to deposit. Twelve gallons of very tolerable mucilage was obtained, and which, although unfit for sale, or the nicer purposes of trade, was found an excellent substitute for ordinary paste, possessing unlimited keeping qualities, but scarcely as adhesive as mucilage from

gum arabic. The latter property may, however, be given by the addition of a small quantity of molasses; and thus prepared, the mucilage will be found quite acceptable, and, certainly, cheap enough.

While speaking of tincture of myrrh, it may not be out of place to allude to a plan for its preparation which was proposed by an American pharmacist, and which has, to some extent, come into use. It consists in forming an emulsion of the drug with hot water, and mixing this with alcohol. The resulting tincture is deep-colored and quite thick, conveying the vulgar idea of *strength*. Strong it is, but not in aroma, or fragrant resin. The practice cannot be discountenanced too strongly, as not only is the preparation quite different from what the *Pharmacopœia* requires, but the product is a sticky abomination.

Adulteration of Lard.—Some time ago, the stock of prepared lard being exhausted, a quantity was procured from a respectable pork-dealer. It was beautifully white; so much so, that the writer was led to question his ability to produce anything equal to it. The first trial was in preparing ointment of nitrate of mercury. The color, when the mercurial solution was added, was the reverse of citrine, indeed, decidedly santurine, developing in a short time to a full slate color. Surprised at this unprecedented result, the usual precautions having been taken as to temperature, etc., the lard was suspected, and, on examination, was found to contain a large proportion of lime. Some time after, being in conversation with a lard-renderer, a hint was dropped as to the relation of lime to color, when the information was confidentially imparted that a common practice among lard-dealers was to mix from two to five per cent. of milk of lime with the melted lard. A saponaceous compound is formed, which is not only pearly white, but will allow of the stirring in, during cooling, of 25 per cent. of water. So much for appearances.

Extract of Vanilla.—The pods are commonly recommended to be rubbed up with sugar. A plan we have adopted gives more satisfactory results. The pods are first cut into short lengths with a pair of shears, and are then ground, or pounded, with the addition of a liberal amount of clean, broken glass (old bottles). The powder may be made of almost any degree of fineness, and the ground glass assists materially in the percolation. Fifty pounds of vanilla may be completely exhausted by twenty gallons of spirit.—*Canadian Pharmaceutical Journal*, April, 1871.

THE MEDICINAL PROPERTIES OF THE COCOA-NUT.

BY JOHN R. JACKSON, A.L.S.,

Curator of the Museums, Royal Gardens, Kew.

The cocoa-nut (*Cocos nucifera*, L.) is a well-known economic plant, and is extensively cultivated in tropical countries. It is estimated that in Travancore alone there are ten millions of these trees growing. The fruits are a most important article of food in the countries where they grow, while the oil and the fibre of the husk—known as coir—are valuable articles in British commerce.

The cocoa-nut is not a recognized medicinal plant in European practice, though the oleine obtained by pressure from the crude oil and refined, has been used as a substitute for cod-liver oil, experiments having shown that its effect in increasing the weight of the body is almost equal to that of the latter, but that its continued use is apt to disturb the digestive organs and produce diarrhœa. The crude oil, as brought into England, is obtained by boiling and pressing the white kernel or albumen. While in a fresh state, and in a liquid form, this oil is of a pale yellow color, and almost without smell; it is much used in cookery by the natives, but becomes partially solid and turns rancid before it arrives in this country, where, for the purposes of the candle-maker, the stearine or solid fat is separated from the fluid. Cocoa-nut oil is said to be useful in strengthening the growth of the hair.

The milk of the coaco-nut is more important to the natives in a medicinal point of view than the oil; in India they use it as a purifier of the blood, and we have heard from many an English resident in our eastern possessions, that it is not only an excellent medicine for the purpose, but that nothing can possibly be more refreshing to a thirsty traveler under a tropical sun than a good draught of fresh cocoa-nut milk. As we obtain it in this country, it has not only lost its freshness and fine flavor, but has also lost its medicinal properties. When quite fresh it has been employed successfully by English doctors in India in cases of debility and incipient phthisis, and it also forms an excellent substitute for, if indeed it is not preferable to, cow's milk for tea and coffee. In large doses, however, it is said to act as a purgative, and on this account has been recommended in lieu of castor oil for those who cannot overcome the nausea arising from the latter. In the Fiji islands the milk is very extensively used, but it has been supposed, with how much truth we are not able to say, that

the continued use of it predisposes to the dropsical complaints which are said to prevail in those islands.

The toddy or wine which is obtained from the flower-spikes is described as being very refreshing and delicious, taken before sunrise; it is given by the native doctors in cases of consumption, and if taken regularly is said to be an excellent medicine for delicate persons suffering from habitual constipation.—*Pharm Journ. and Trans.*, July 8th, 1871.

Varieties.

Silver Islet.—Mr. Joseph Wharton remarked that a letter, received this day from Thomas Macfarlane, the discoverer of Silver Islet, in Lake Superior, near the north shore, states that, up to March 2, ores to the value of \$250,000 had been taken out, and it is confidently believed that this will be increased before the opening of navigation to \$500,000. A coffer-dam has been built around the islet, at a cost of \$60,000, to increase the area for working. The ore has thus far been sent to the factory of E. Ballach & Son, Newark, N. J., but works are now about to be built at Wyandotte, near Detroit, for the treatment of it. Although the islet is in Canada, and the discoverer is a Canadian, it was not found possible to interest Canadians in the venture of opening the vein, and this extremely promising deposit is therefore the property of citizens of the United States. The ore is worth about \$1500 per ton.—*Pro. Acad. Nat. Sci.* 1871.

Fraudulent American Degrees.—At an inquest recently held in Dublin, one Mr. W. L. Erson, the medical attendant of the deceased, is reported in the *British Medical Journal* to have testified: "I am a physician of the College of New York, but I never was in that city. I have my diploma." It may perhaps be well to inform our English contemporaries that the only regular schools of medicine in this city are those of the University of the City of New York, the College of Physicians and Surgeons, Bellevue Hospital, and the Woman's Medical College of the New York Infirmary; neither of which, we firmly believe, confers degrees without proper precaution. In view of the apparent flooding of the British market with fictitious diplomas purporting to emanate from non-existent colleges in America, our respectable schools, for their own sakes, should combine to detect and expose the sharpers whose nefarious trade is bringing our whole educational system into evil odor abroad.—*N. Y. Medical Gazette*, July 8th, 1871.

Muriate of Quinia in solution of 25 ctgrm. in 30 grm. distilled water (gr. iv to ʒi) is recommended by Italian physicians as an excellent collyrium in chronic catarrh of the conjunctiva &c.—*Pharm. Zeitung*.

Female Dispensers.—The Pharmaceut. Zeitung states, that deaconesses have, since July 2d, 1853, the right to superintend *dispensaries* after having passed an examination before a board consisting of a district physician and an apothecary. The item under the caption "Female Apothecary," on page 325 of the July number should be corrected accordingly.

Vaccine matter is preserved in Germany by intimately mixing the fresh matter with 2 parts of pure glycerin and 2 parts distilled water; the mixture is well agitated before it is used.—*Ibid.*

Benzoic Acid from Urine.—C. J. Kaufmann, in Königsberg, Prussia, manufactures annually about 70 cwt. benzoic acid from about 35,000 cwt. urine of horses and cattle, and consumes about 1000 cwt. of sulphuric acid. The benzoic acid is mostly employed for the production of a red anilin dye.—*Zeitschr. d. österr. Apoth. Ver.*, 1871, N. 17.

Pill masses of Ferri Sulph. and Potas. Carb. are made, according to the Hamburg pharmacopœia of 1852, with honey; and by the Belgian pharmacopœia, with tragacanth; while some pharmacists use a small quantity of carbonate of magnesia and then mucilage of gum arabic.—*Pharm. Cent. Halle.* 1871, 198, (see also p. 307 of this volume of *Amer. Journ. Pharm.*)

Shoe Blacking without Acid.—3 to 4 lbs. lamp black and $\frac{1}{2}$ lb. bone black are well mixed with 5 lbs. each of glycerin and syrup. Meanwhile $2\frac{1}{2}$ oz. of gutta percha are cautiously fused in a copper or iron kettle, and 10 oz. olive oil added with continual stirring, afterwards 1 oz. stearin. The warm mass is added to the former mixture, and then a solution of 5 oz. gum senegal in $1\frac{1}{2}$ lbs. water, 1 drachm each of oil of rosemary and lavender may be added. For use, the blacking is diluted with 3 to 4 parts of water.—*Artus in Vierteljschr. Chem. Centr. Bl.* 1871, N. 21.

Manufacture of Sugar in the German Zollverein.—During the year 1869—70, 297 sugar factories used 51,691,737 cwt. of beets in the manufacture of sugar.—*Ibid.*, N. 24.

Chloralhydrate and Cod-liver Oil.—10 gm. crystallized pure chloral hydrate dissolved by digestion in a sand bath, in 190 gm. cod-liver oil, renders the latter more palatable; used by consumptives, the preparation diminishes the night sweats, produces sound sleep and improves the appetite. The dose is six tablespoonfuls daily.—*Pharm. Zeit.* from *Gaz. farm. ital.*

Chinese Cement.—Among the crude materials sent by Dr. V. Scherzer from Peking was the cement known as schio liao, which is used in the north of China as paint for wood of all kinds, and by which these substances may be made perfectly water-proof. Dr. Scherzer saw in Peking a wooden box which had traveled the tedious road via Siberia to St. Petersburg and back, which was found to be perfectly sound and water-proof. Even baskets made of straw

became, by the use of this cement, perfectly serviceable in the transportation of oil. Pasteboard treated therewith receives the appearance and strength of wood. Most of the wooden public buildings of China are painted with sehio-liao, which gives them an unpleasant reddish appearance, but adds to their durability. This cement was tried in the Austrian department of Agriculture, and by the "Vienna Association of Industry," and in both cases the statements of Dr. Scherzer were found to be strictly accurate. It is prepared in the following manner: To three parts of fresh-beaten blood are added four parts of slaked lime, and a little alum; a thin, pasty mass is produced, which can be used immediately. Objects which are to be made specially water-proof are painted by the Chinese twice, or at the most three times. This cement is not used for such purposes in this country; but it certainly deserves attention, as it is the cheapest really effectual means of rendering wood and other materials perfectly water-proof.—*Technologist*, June, 1871.

Closing of Pharmacies in Italy.—At the inspection of pharmacies in the province of Naples, several establishments were closed by the authorities in consequence of not having on hand all the medicines required by law, and on account of keeping adulterated articles.—*Pharm. Zeitung*, N. 45.

Iodoform Ointment.—In the Boston City Hospital, iodoform ointment in connection with iodide of potassium is extensively and successfully used in the treatment of syphilitic ulcers and rupia. Dr. William Ingalls, attending surgeon, advocates this formula in two obstinate cases under his care:

R.	Iodoformi	5ss.	
	Spts. vini. rect.	q.s.	
	Adipis snill.	5vijss.	M.

—*Chicago Med. Exam.*, from *Boston Med. and Surg. Journal*.

The Effect of Climate and Soil on Plants.—As an example of the effect of a tropical climate and soil on British cultivated plants and their products, may be mentioned the fact of the introduction of some peppermint plants from the Mitcham fields into a plantation at Singapore. After being planted in their new tropical home in a situation fully exposed to the sun they grew very well, but not to the height they grow in this country; moreover, they refused to flower, and almost as soon as they had arrived at full growth they dried up, having an appearance of being burnt. They were also found to yield not more than half the usual quantity of essential oil, and that of a dark claret color and of an inferior odor.—*Pharm. Journ. and Trans.*, July 1, 1871, from *Gardeners' Chronicle*.

Posture of the Head in Sleeping.—It is often a question among people who are unacquainted with anatomy and physiology, whether lying with head exalted or on a level with the body is the more unwholesome. Most, consulting their own case on this point, argue in favor of that which they prefer. Now, although many delight in bolstering up their heads at night and sleep soundly without injury, yet we declare it to be a dangerous habit. The vessels in which

the blood passes from the heart to the head are always lessened in their cavities when the head is resting in bed higher than the body; therefore, in all diseases attended with fever the head should be pretty nearly on a level with the body; and people ought to accustom themselves to sleep thus and avoid danger.—*Home and Health*, I, 150.

AMERICAN PHARMACEUTICAL ASSOCIATION.

NOTICE.

The Nineteenth Annual Meeting of the American Pharmaceutical Association will be held in the city of St. Louis, Missouri, on the second Tuesday (12th) of September, 1871, commencing at 3 o'clock P.M.

With the view of increasing the interest and importance of this meeting the Committee of Local Arrangements will endeavor to make the display of products in any way connected with the drug business as extensive as possible.

Specimens of crude drugs, especially such as are indigenous to the West and South, will serve to illustrate the materia medica of the great Valley of the Mississippi, and are particularly desirable articles for exhibition; they should be delivered, free of expense, to Wm. H. Crawford, Local Secretary, St. Louis, accompanied by an invoice and description.

It is earnestly hoped that all who are eligible and who are not already members will become such, and thus more nearly equalize the representative number of members among all the States, which would greatly increase the usefulness of the Association, and render it more national in character.

R. H. STABLER, M. D., *President*.

Alexandria, Va., June 13, 1871.

Pharmaceutical Colleges and Associations.

PHILADELPHIA COLLEGE OF PHARMACY.—The board of Trustees have empowered the delegates to the next annual meeting of the American Pharmaceutical Association to act as or appoint representatives of this College at the convention of Colleges, meeting simultaneously with the Association.

THE MAINE PHARMACEUTICAL ASSOCIATION held its annual meeting in the city of Portland on the afternoon and evening of July 18th, Dr. H. T. Cummings in the chair, and C. Way acting Secretary. After the election of members, the following officers were elected for the ensuing year: H. T. Cummings of Portland, President; John G. Cook of Lewiston, Vice-President; Christopher Way of Portland, Recording and Corresponding Secretary; A. G. Schlotterbeck of Portland, Treasurer; H. T. Cummings and Geo. C. Frye of Portland, and S. Anderson of Bath, Executive Committee.

The Secretary offered the following motion, which was passed: In consequence of the suspension of the operations of the Association for the past two years, it is proposed to remit the dues for the last two years, and to collect

them for the current year. Those who have not paid their dues for the first year will be called upon to pay them in addition to the current year.

A general discussion followed in regard to the establishment of a college of pharmacy in this State, in which Messrs. Schlotterbeck, Cook, Hawes and others participated. Mr. Cook offered the following:

Voted.—That a Committee of three be appointed to confer with the Professors of the Massachusetts College of Pharmacy and ascertain the cost of a course of lectures, to be delivered before the Maine Pharmaceutical Association the coming winter, on Chemistry, Materia Medica and Pharmacy; also to confer with the committee of the Maine Medical Association appointed at their last meeting, to co-operate with this Association, and with any other medical men who will be likely to render us assistance in our enterprise, and report at a meeting to be called at the request of the President.

The vote was adopted, and Messrs. Schlotterbeck and Hawes were appointed, with power to select a third member.

At the evening session the discussion on the subject of a school for Pharmaceutical Instruction was resumed and continued with much spirit up to a pretty late hour. It was finally referred to the committee appointed in the afternoon session, who are to collect all the facts, harmonizing them as far as possible, with a view to the success of the plan, and report at an adjourned meeting.

The Association adjourned to meet on Tuesday, the 19th of September ensuing.

MASSACHUSETTS COLLEGE OF PHARMACY.—The following gentlemen were elected delegates to represent this College at the next annual meeting of the American Pharmaceutical Association at St. Louis: Mich. H. Gleeson, Charles I. Eaton, Geo. F. H. Markoe, Joel S. Orne, Chas. H. Price.

The *Alumni Association* of the same College elected the following delegates to the same meeting: Geo. H. Beal, Thos. Doliber, J. Howes Dyer, Geo. E. Raymore, Chas. A. Tufts.

Both delegations have been empowered to fill vacancies.

THE NEW JERSEY PHARMACEUTICAL ASSOCIATION will hold a meeting at Long Branch, August 17th.

MARYLAND COLLEGE OF PHARMACY.—Among the passengers of the steamship Baltimore, which sailed for Europe on July 19th, was Dr. George W. Andrews, one of the founders of this College, which was granted a charter of incorporation in 1841. He has continued an active member of the college to the present time, and for more than twenty years has been honored with Presidential office, his last term expiring on the 13th of July, when he declined to accept the position any longer, on account of ill-health. It having been announced that he purposed visiting England in quest of health, a committee was appointed by the college to draft suitable resolutions, expressive of the high appreciation in which he was held by his fellow-members. At the special session held on the 17th instant, the complimentary resolutions, as reported by the committee, were unanimously adopted, and eulogistic remarks made by the members present, after which a resolution was passed to charter a steamer and to accompany Dr. Andrews as far as Swan Point. On the evening of the 18th, the

Committee on Resolutions repaired to the residence of Dr. Andrews, and the President elect, Dr. J. Brown Baxley, presented, in the name of the college, the engrossed copy of resolutions, which were briefly responded to by the retiring President. The next day, quite a number of the members of the college and other friends of Dr. Andrews met on board the steamer and proceeded with him as far as Swan Point, when, after many kind wishes and an affectionate adieu, they returned to Baltimore.

THE LOUISVILLE COLLEGE OF PHARMACY, at its meeting held July 17th, adopted the following:

WHEREAS, It has pleased an all-wise Providence to remove from our midst, by death, our brother, John David Owen, who had endeared himself to us by his deeds of kindness and Christian charity; therefore be it

Resolved, That in the death of John David Owen, the College of Pharmacy has lost one of its most promising members, and the church one of its most active and zealous advocates.

Resolved, That we extend to his bereaved family, and especially his aged mother, our heartfelt sympathy and condolence in their deep affliction.

Resolved, That we wear the usual badge of mourning for thirty days.

Resolved, That a copy of these resolutions be presented to the members of his family; that the same be published in the daily papers and spread on the records of this association.

THE BRITISH PHARMACEUTICAL CONFERENCE will hold its annual meeting at Edinburgh, on the first of August.

PHARMACY IN HOLLAND.—The Pharmaceutical Society of the Netherlands held its 23d annual meeting on the 27th of June. The introduction into the Pharmacopœia of the brown Java cinchona bark, and the legalization of the use of measures of capacity were amongst the subjects considered.

THE PHARMACEUTICAL SOCIETY OF BELGIUM has memorialized the Commission appointed to suggest plans for the reformation of academical instruction, and proposes, among others, the following measures: Uniform literary attainments for students of medicine and pharmacy, and attendance upon a philosophical course; enlargement of the pharmaceutical branches by the addition of a course on hygiene, by fuller instruction in quantitative analysis, and by a special course on toxicology; renewal of the doctorate in pharmacy, &c.

THE PHARMACEUTICAL SCHOOL AT STRASSBURG has not been reopened yet, but the lectures are continued there gratuitously, with the approval of the authorities, by the voluntary labor of several apothecaries of Strassburg.

THE NORTH GERMAN APOTHECARIES' SOCIETY will hold its annual meeting at Dresden, Saxony, from Sept. 14th to 16th.

The two German apothecaries' societies of Northern and Southern Germany are arranging the preliminaries for the purpose of effecting a union and forming one national association.

THE PHARMACEUTICAL INSTITUTE OF DORPAT, RUSSIA, has been removed into

the old university building, and now has a lecture room for seating 40 students and containing the cabinets in 11 glass cases; also a laboratory for the heavier operations, with furnace, drying closet, sandbaths, waterbaths, two stills, &c.; and a laboratory with 36 tables for qualitative analysis, six tables for volumetric examinations, a closet for operations with sulphuretted hydrogen, two waterbaths and a drying closet. Adjoining the laboratory is the balance room, the chemical cabinet, and the laboratory of the pharmaceutical director and assistant, with three additional tables for scientific investigations.

Editorial Department.

THE NEXT MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, AT ST. LOUIS.—From the information thus far received, the probabilities are that this meeting will be very largely attended from all parts of the country; the colleges and societies of the Eastern States expect to send full delegations, and many other members have arranged to be present.

The Permanent Secretary has issued his circular, and negotiations are in progress to secure for the members and their families, as well as for the delegates and applicants for membership, a considerable reduction of fare by one and probably two railroads. Applications to share in the benefit of this reduction should be made at once.

The headquarters of the Association during the meeting will be at the Southern Hotel, St. Louis, where ample accommodations and a suitable reduction from the usual charges have been provided.

THE CONDITION OF PHARMACY IN FOREIGN COUNTRIES, and especially their legal regulations relating to the practice of our art, are of particular interest at a time when the agitation in this country for suitable restrictions has assumed so large dimensions. A few years ago there were no laws of the kind enforced in the United States, although somewhat vague provisions looking toward the competency of the apothecary had been placed on the statute books of three States. Now we have laws in three or four States, which are being enforced, and the same subject has been before the Legislatures of seven or eight other States, and is being agitated by several local pharmaceutical societies.

In continental Europe a certain control has been exercised by the governments over the apothecaries and their establishments, until in most of the European States the machineries for this control have gradually become fixed institutions. Nowhere, perhaps, is this control more thorough and searching than in Germany, where it has thus far remained unaffected by the perfect freedom existing for all trades, although voices have been raised for a similar liberty to pharmacy, and against the legal limitation of officines.

To present our readers with a complete and true picture of the pharmaceutical affairs as they have been gradually developed in Germany, we lay before them the lucid essay of Dr. Fred. Hoffmann, which will doubtless invite comparison with the condition of pharmacy in our country, and which we hope will

stimulate those among our readers who are familiar with other countries and their pharmaceutical institutions, to communicate this knowledge to the *Journal*. What has been done by others, if it cannot serve as a guide, may at least teach us how to avoid errors and mistakes.

THE LIABILITY OF APOTHECARIES TO THE SPECIAL TAX AS LIQUOR DEALERS.—Through Mr. Stokley, Internal Revenue Assessor in Philadelphia, we have obtained a copy of the following letter of Gen. Pleasanton, which explains itself :

TREASURY DEPARTMENT,
Office of Internal Revenue,
Washington, July 7th, 1871.

SIR,—Mr. John M. Maisch, Editor *American Journal of Pharmacy*, 145 North 10th street, Philadelphia, wrote to this office on the 10th ult., and enclosed an abstract from his journal, respecting which he asks my opinion and decision. That abstract is as follows: "Apothecaries are, therefore, after the 30th of April last, subject to the same liability as any other person for the sale of distilled spirits, wines or malt liquors in any quantity, and without reference to the purposes for or manner in which they are sold, that is to say, alcohol in any form and for whatever purpose, and for the dispensing of such spirits and liquors upon physicians' prescriptions and for strictly medicinal purposes."

After this explanation made to his readers and subscribers, the editor adds that, though the decision is probably valid in law, he doubts the intention of Congress of imposing this tax upon apothecaries, and thus stamping them as liquor dealers.

I cannot perhaps respond to the editor's request for my decision in any way more satisfactory than by giving the ruling of this office upon the subject. It is as follows: "If apothecaries sell or offer for sale foreign or domestic distilled spirits, wines or malt liquors in any quantity, they subject themselves by so doing to all the liabilities of liquor dealers; but apothecaries can use spirits and wines in making any and all the compounds legitimately required in their business without incurring any liability by so using them; *provided* the spirits and wines so used lose their identity in the compounds and partake of their medicinal nature."

Apothecaries, therefore, it is seen by this, are not precluded, as the *Journal* states, from dispensing such spirits and liquors upon physicians' prescriptions, and for strictly medicinal purposes.

With regard to the intention of Congress and the editor's doubts respecting it, you will please direct his attention to the fact recorded in the Report of the Commissioner of Internal Revenue, pages 12—14, that my predecessor in office, Hon. C. Delano, called the attention of Congress to certain defects, ambiguities, &c., in the Act of July 14th, 1870, among which was this respecting apothecaries. As Congress has not seen fit, notwithstanding my own remonstrances were added to those of Mr. Delano, to make any modification in favor of apothecaries, there can be no longer any just cause for doubt of its intention.

Mr. Maisch asks also whether apothecaries are required to make application for a liquor dealer's license, or to wait until they have received notice before paying the special tax. In reply to this, your attention, for his instruction, is directed to Sect. 72 of the Act of June 30, 1864, as amended, from which it may be known that every person is required to register his name or style, trade, business, &c., or, in other words, to make application. Therefore apothecaries, if they intend to subject themselves to the liabilities of liquor dealers, must make their application.

Respectfully,

A. PLEASANTON, *Commissioner.*

W. S. STOKLEY, Esq., *Assessor 2d Dist.,*
Philadelphia, Pa.

The annual report of the Commissioner of Internal Revenue on the operations of the internal revenue system for the year 1870, made by Hon. C. Delano, Commissioner, to Hon. Geo. L. Boutwell, Secretary of the Treasury, contains, on page 14, the following:

"The repeal of the special tax upon apothecaries takes effect May 1, 1871. After that time they must either abandon the dispensing and sale of wines and spirits officinal, upon physicians' prescriptions or otherwise, or pay special taxes as liquor dealers, unless there shall be additional legislation upon the subject. So far as they are concerned, the act of July 14, 1870 increases the taxes."

It will be seen from this extract, that the attention of Congress has been drawn to this subject last year by Mr. Delano. We have not read General Pleasonton's remonstrance; but, notwithstanding these two official hints given to Congress proved unavailing, we still beg leave to differ from the Honorable Commissioner, and adhere to our doubts in regard to the intention of Congress to impose the liquor dealers' special tax upon apothecaries. We believe that the last internal revenue law was made to reduce taxation, and it is natural enough to suppose that apothecaries were intended to be relieved from the special tax in common with physicians, storekeepers and others; hence, in our opinion, it was merely an unintentional oversight of Congress not to have incorporated the exemption clause of the old into the new law.

According to the decision of the Internal Revenue Office, apothecaries may use liquors in making all the *compounds* legitimately required in their business, without thereby becoming liquor dealers, *provided the liquors so used lose their identity*. To dispense medicines upon physicians' prescriptions is certainly a legitimate occupation of the apothecary. *Spir. Vini Gallici* is certainly a legitimate medicine. But if the physician prescribes the latter, as he frequently does in a variety of diseases, the apothecary becomes a liquor dealer, unless the physician orders something else to be added, whereby *the spirit loses its identity*.

There are apothecaries who use in their business an amount of liquors in value beyond the limitation of the former law, or who, from the nature of their locality, must keep larger quantities for sale; they had already been subject to the special tax of liquor dealers. There are some who make it their business to sell liquors under the cloak of medicine, and such should, as a matter of course, be liable to the same special tax. The large number, however, who conscientiously adhere to their duties as apothecaries, and many of whom probably require annually for these purposes liquors barely exceeding in value the amount of the tax, do not desire to become liquor dealers; we hope they will take the necessary steps to lay the matter before Congress, and if this is done in a proper way, we believe the desired relief will be granted.

THE ELIXIR NUISANCE.—We have received a letter on this subject, which contains some excellent suggestions with a view of abating what has become a nuisance, that we have requested permission from the author for its publication:

BALTIMORE, July 12th, 1871.

Editor of Am. Jour. Pharmacy.

Dear Sir,—In the last number (July) of your valuable journal, I notice a very commendable article written upon “Modern Elixirs.” I have for a long time entertained the same views as expressed by you concerning those preparations. They have at last become a “nuisance” to the dispensing pharmacist. More reasons than one might be adduced to prove them such. I, for one, have never made but the one “Elix. Valerianate Ammonia,” because I have felt that the matter should be controlled and checked by our “Colleges of Pharmacy,” and not encouraged by me. If we must have the various Elixirs, it seems as though there might be contributions of formulas from individuals connected with our various Colleges of Pharmacy throughout our country, and presented at the meeting of the American Pharmaceutical Association; and from the number received let there be selected (by a Commission appointed for the purpose) the most satisfactory formulas, and recommend them to be adopted as officinal preparations, so that upon a revision of our national Pharmacopœia they could be inserted as such. I have conversed with several of our leading pharmacists and physicians, and they have expressed their dissatisfaction with the present confused condition of matters as brought about by the introduction of so many Elixirs, and by so many different makers.

I do not write this with the expectation of influencing the Elixir Market in any manner, but merely to inform you that the same feeling exists in our city concerning those preparations that seems to exist elsewhere.

Hoping that you will continue to agitate the subject until the abuses are checked, I remain,

Most respectfully, yours,

E. WALTON RUSSELL.

IMPURE CHLORAL HYDRATE.—During the past winter we have repeatedly taken occasion to lay before the Philadelphia College of Pharmacy the fact that chloral hydrate in the form of cakes of a crystalline structure is (according to our experience) *always* impure, inasmuch as it contains or soon generates notable quantities of hydrochloric acid gas and probably other products of decomposition. This is often not noticed unless the decomposition has made considerable headway. The paper of Mr. Boehme, published in the present number, furnishes another example of this decomposition.

Such impure chloral hydrate can be readily purified by crystallization from warm bisulphide of carbon. It then retains usually a trace of the solvent, which, however, rapidly evaporates on trituration in a mortar. Crystallized chloral hydrate is, and has been for months, an article of commerce; the commercial must have been crystallized from another menstruum, the crystals differing in shape and appearance from those obtained from the bisulphide.

Crystallized pure chloral hydrate does not attract moisture from the atmosphere, but evaporates completely, though slowly, at the ordinary temperature, without becoming moist; on being approached with a glass rod dipped in ammonia, white fumes are *not* produced. These two simple tests readily distinguish it from the cake chloral hydrate.

In this connection we desire to point out to pharmacists and to physicians the importance of using none but that occurring in well defined crystals. It is not improbable that many of the bad effects complained of by some physicians, as well as some of the decompositions that are said to have occurred in medicines, may be altogether attributable to impure chloral hydrate in a state of decomposition.

THE COMMISSIONERS appointed by the Mayor of New York have given notice, through the newspapers (English and German), that the examination of all druggists and prescription clerks will take place on Tuesdays and Thursdays of each week, between the hours of 10 A. M. and 3 P. M. Druggists will be examined first, in alphabetical order, afterwards the clerks.

The subjects for examination will be chemistry, poisons and their antidotes, practical pharmacy and officinal botany, materia medica and adulterations of drugs and prescriptions.

According to the advertisements in the German language, the following are among the subjects for examination, evidently mistakes made in translating the original notice: Practice of medicine (*praktische Heilkunde*), botanical drugs and the making (*Bereitung*) of drugs.

The notice is signed by all the Commissioners, Professor Doremus, President, and by Mr. Louis G. Branda, as Secretary.

We learn that the fees for certificates have been fixed as follows: Druggists and drug clerks, \$30; prescription clerks, \$10; and that the probable amount of fees for the first registration is estimated at \$23,000. Wherein the distinction is drawn by the board between drug clerks and prescription clerks, we have not been informed.

MURDERING THE UNBORN.—A correspondent has sent us the circular of a New York firm, which is being mailed to all prominent druggists, offering for sale the female monthly pills of a notorious woman who inhabits a large mansion near Fifth Avenue, in New York City, and whose career was there, recently, pictured in a court of justice, during the trial of an abortionist, more unlucky than she, who has thus far escaped the punishment so justly deserved.

For the information of the agent of this vile nostrum we would state that in the State of Pennsylvania he has made himself liable to the provisions of the law against the circulation or distribution of publications relating to medicines for females, and that the penalty for such an offence is a fine not exceeding one thousand dollars, and imprisonment not exceeding six months.

The enactment of similar laws in other States would at least lessen the opportunities and facilities of procuring the means for murdering the unborn.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Opium and the Opium Appetite, with notices of alcoholic beverages, cannabis indica, tobacco and coca, and tea and coffee in their hygienic aspects and pathologic relations. By Alonzo Calkins, M.D. Philadelphia: J. B. Lippincott & Co. 1871. 8vo, 390 pages.

An interesting volume, similar in some respects to Cooke's *Seven Sisters of*

Sleep, but mainly confined to opium and its abuses. The drug is considered in its historical, commercial, pharmacological, physiological, pathological, &c., relations, and the effects of its popular use are afterwards contrasted with those of the other stimulants mentioned in the title. The legislation against stimuli is finally considered, and, after a historical review, the author pronounces against any attempt at prohibitory laws and in favor of a regulative system. The enormous consumption of stimulants by the inhabitants of all countries is graphically sketched, and the beneficial influence of some as contrasted with others dwelled upon. Thus we find in Chapter XXIV, entitled *The Alternative—the Poppy or the Vine—Which?* the following paragraph: "The main conclusion fairly deducible from such a chain of correlative facts as has just been adduced is undoubtedly and unmistakably this: that when pure wine, made in harmony with nature's teachings, shall have superseded the animalizing products of the still and those more poisonous liquids from the chemical laboratory, then shall sobriety universally prevail and 'the land have rest.' . . . The importation of wines into Great Britain for the year 1857 were 6,600,000 gallons; for 1867, 13,750,000 gallons. The amount in gallons of alcoholic liquors consumed in the kingdom was, for 1857, 24,150,000; for 1867, 21,200,000. As wine increases whiskey declines."

The author's diction is piquant, almost aphoristical, and sometimes poetical, but always clear. The text is frequently interspersed with historical and mythological anecdotes, and with quotations from English and French literature and the classics. Some incongruities and errors have been observed in Chapter IV: *The Pharmacology of Opium*, where (on page 43) opium is termed a "crystalline liquid," a "gum," and an "extract." On page 49, one grain of opium is said to be equal to 1-5th grain morphia (should be 1-10th to 1-8th gr.) and to 24 minims (should be drops) of laudanum. On pages 36 and 43 the erroneous statement is made that Europe and America are mainly supplied with opium from India.

The general getting up of the work is creditable to the publishers, and we heartily commend its perusal to those who feel an interest in discouraging the use of opium and other stimulants as means of intoxication.

Thirteenth Annual Report of the Corporation of the Chamber of Commerce of the State of New York for the Year 1870-71. In two parts. Compiled by George Wilson, Secretary. New York: Press of the Chamber of Commerce. 1871. One volume. 8vo, 368 pages.

The first part contains, upon 153 pages, the transactions of the Chamber; the second part, upon 207 pages, the special reports on the various branches of commerce.

The report of the drug trade has been prepared by Mr. Daniel C. Robbins, and consists of a review of the drug trade of the United States for the year 1870; a statement of the average annual import of drugs, &c., for the past three years, including former and present duty; a review of the New York market and a tabular statement of the monthly fluctuations of drugs and chemicals during 1870.

Discours sur la Falsification de la Bière par la Picrotoxine. Par H. Bonnewyn, pharmacien à Ixelles. Bruxelles: Henri Meneceaux. 1871. 8vo. 15 pages.

A discourse on the falsification of beer by picrotoxine.

This is a reprint from the *Bulletin de l'Académie Royale de Médecine de Belgique*. The author maintains that the falsification of beer with cocculus indicus should be proven by the separation of picrotoxin, and defends this position against Mr. Depaire, who regards physiological experiments upon fishes as sufficient and preferable. The author recommends the following test for picrotoxin: To 2 to 5 centigrammes of it 10 or 12 drops monohydrated sulphuric acid is added; in 4 or 5 minutes an amber yellow color is produced, which slowly passes into a saffron yellow, and is then permanent.

Report of an Inquiry in regard to the Prevalence and Ravages of the Colorado Potato Beetle (*Doryphora decemlineata*, Say) *in the Western portion of Ontario*, with the results of some experiments on the insect with various poisonous substances, and instructions for using the best practical remedies. By William Saunders, Vice-President, and Edmund B. Reed, Secretary-Treasurer of the Entomological Society of Ontario. Toronto, 1871.

The authors visited, in June last, the western part of Ontario, at the request of Hon. John Carling, Commissioner of Agriculture and Public Works for that Province. They observed that destructive beetle in such enormous numbers as to create serious apprehension of its extension over the greater portion of the Province. As the best means to destroy it without injuring the crop, they recommend a mixture of 1 part Paris green with 10 or 12 parts of flour, sprinkled over the potato vines early in the morning.

Twenty-eighth Annual Report of the Managers of the State Lunatic Asylum, for the Year 1870. Transmitted to the Legislature March 25, 1871. Albany, 1871.

The report includes the Treasurer's account and the report of the Superintendent, which contains well-arranged statistical tables, such as are usually expected from the medical head of such an institution.

The Illustrated Industries of California. San Francisco, 1871.

A cleverly gotten up book of 94 large octavo pages, which, however, gives no information of the extent of California industry, but under that garb merely advertises one firm of San Francisco for each industrial branch.

OBITUARY.

PROFESSOR DR. WILHELM WICKE, of Göttingen, died there June 6th. His researches were mainly devoted to agricultural chemistry.

DR. JULIUS SCHACHT, one of the directors of the North German Apothecaries' Society, died at Berlin June 20th.

THE
AMERICAN JOURNAL OF PHARMACY.

SEPTEMBER, 1871.

ON COTTON SEEDS.

BY PROF. F. A. FLÜCKIGER.

From an excellent monograph on this subject, reprinted from the June number of *N. Jahrb. f. Pharm.*, and communicated by the author, we make the following extracts:

Linnæus described five distinct cotton plants: *Gossypium arboreum*, *G. herbaceum*, *G. barbadense*, *G. hirsutum* and *G. religiosum*. Recently Parlatore, in his monograph, "*Le Specie dei Cotoni*," (Firenze, 1866, 64 pp. 4to., 6 folio plates) confirmed these species, and added two more from Polynesia—*G. sandvicense* and *G. taïtense*. The eighth species, *G. anomalum*, Wawra et Peyritsch (*G. senarensis*, Fenzl,) belongs to tropical Africa.* All these plants are perennial; but only *G. religiosum* produces stout stems, about twenty-five feet in height; the stems of the others become woody, reach, however, barely a height of four meters, with a diameter of a few centimeters. When cultivated, they mostly become annual or biennial, and remain herbaceous.

The first two species in the above list belong to the hot countries of Asia, and were known in early history. The Florentine museum has capsules and seeds from ancient Egyptian sepulchres, which, according to Parlatore, are derived from *G. arboreum*. Theophrastus,† in the fourth century before Christ, described a cotton plant. *G. barbadense*, *hirsutum* and *religiosum* originally inhabited the tropical

* Oliver, flora of tropical Africa, I, London, 1868, 211. *G. anomalum* is remarkable for the linear and entire parts of the epicalyx.

† Hist. plantar. 4, 7, 7.

parts of America, particularly Central America and the West Indies; the former is now most extensively cultivated in consequence of the excellence of its cotton. In the Southern States of North America it yields the valued Georgia, or Sea Island cotton; it is also cultivated in Western Africa, Egypt, East Indies and Australia. *G. hirsutum* is distributed to the same extent, and grows well in Southern Italy; the upland cotton, short staple, Siam, Castellamare, and Malta cotton comes from this species. *G. religiosum*, probably indigenous to Peru, requires a warmer climate, but is cultivated in some localities south of the Mediterranean. *G. herbaceum*, owing to the small capsule, gives a smaller yield; its purely white fibre, however, is better than that of *G. arboreum*, which yields the lowest grade of cotton. The species from Polynesia and Central Africa appear not to be cultivated yet.

Like all the extensively cultivated plants which are spread over a considerable area, we find in this genus numerous varieties which are distinguished with difficulty in consequence of the confusion existing in their nomenclature. Parlatore found, even in botanical gardens, varieties of *G. religiosum* under the name of *G. arboreum*.

The cotton fibres, which originate from the cells of the epidermis of the testa, are readily removed from the seeds of *G. barbadense*; they adhere more firmly in *G. anomalum*, *hirsutum*, *sandwicense* and *taitense*. *G. religiosum* has the spinning fibres not firm, but besides them, the testa has a brown reddish covering of short hairs. *G. arboreum* and *herbaceum* have seeds to which not only the cotton, but also the greenish or greyish felt-like covering firmly adhere.

The removal of the spinning fibres, by peculiar machines, without touching the felt cover, is accomplished with almost perfectness from *G. barbadense*, while, owing to the described structure, the cotton is rather torn off from the seeds of the other species. The excellence of the sea island cotton and some other varieties partly depends upon this difference.

The anatomical structure of the seeds is then minutely described and illustrated by microscopical drawings of sections of the testa and of a cotyledon.

The complicate contents of the large tannin cells in the cotyledons, containing also granules of a beautiful violet coloring matter, are dissolved by the oil, if this is expressed, and impart to the latter an unsightly brown color, even if the testa had been previously removed.

The cotton seed oil is of a mild taste, non-drying and congeals somewhat below 0° C. According to Slessor,* it consists mainly of olein and palmitin; the author, however, did not succeed to readily prove the presence of olein by testing with hyponitric acid.

For technical purposes, it ranks with benne seed and olive oil, provided it be obtained colorless or faintly yellow. It is exported in large quantities, partially purified, from England,† and from Marseilles‡ to Italy, whence it is re-exported as *olive oil*. 50,000 gallons of cotton seed oil were expressed in St. Louis, Mo., in 1868, and a factory in Providence, R. I. turns out a sweet golden yellow oil,§ the process of purification being kept secret; it is probable that the crude dark-brown oil is treated with lye, and a similar process appears to be in use in Marseilles. Heated with alkalies, insufficient for saponification, most of the color is removed, including the coloring matter mentioned before, which may, perhaps, be made available for dyeing.

Cotton seed oil, in its crude state, is colored purple by concentrated sulphuric acid, and if bichromate of potassa be added at the same time, blood red; potassa colors it yellowish, and in contact with the air finally bluish purple. After the first reaction, water will separate a matter which dissolves with beautiful colors, ranging between blue and red, in alcohol, chloroform, bisulphide of carbon, potassa, sulphuric acid and ether; if these colors could be fixed an excellent dye stuff would be gained. This body is probably formed by the splitting of a tannin; Kuhlmann|| found in it 68.9 carbon and 8.2 hydrogen.

Nitric acid of spec. grav. 1.2 imparts to the purified oil a very faint yellowish color; a cold mixture of equal parts of nitric and sulphuric acid renders it red brown.

The yield in oil, aside from the species and from climatic influences, varies with the treatment of the seeds; the felt cover, amounting sometimes to 14 per cent. of the weight, if present during the expression, must retain considerable of the oil; 15—29 per cent. of oil have been obtained, and after the removal of the testa 31 to over 50 per cent. The economic value of cotton seed rests mainly in the fact that the oil may be obtained in enormous quantities as a by-product.

* *Jahresb. d. Chemie*, 1866, p. 366, Gmelin, Organ. Chem.

† *Dingler's Polytechn. Journ.*, 1865, p. 236.

‡ Authentic private information.

§ Sold under the name of salad oil.—M.

|| *Jahresber. d. Chemie*, 1861, 944.

Calculated from the nitrogen found, the seeds contain about 23 per cent. and the kernels about 32 per cent. of protein compounds, showing the value of the press cakes as feed or manure.

From 3.7 to 6.78 per cent. of ashes have been obtained from the seeds, 2.33 per cent. from the testa, 4.3 to 8.9 from the kernels. The amount of water is 8 to 9 per cent.; of gum and sugar together 7.5 to 14 per cent. The seeds leave 25 per cent., the kernels only 7 per cent. of cellulose.

Though the use of the cotton fibre is of the highest antiquity, the oil of the seeds was not employed. It appears that the first suggestion for utilizing the oil emanated from the London Society for Encouragement of Arts and Science, in 1785, but, even in the United States, the oil was little known in 1856; very little of it is still made in Brazil, and the amount obtained in Marseilles from West African seeds is not considerable. London manufactures the most, from seeds imported from the Indies and North America; but the production is neither as extensive or as regular as it might be.

The annual production of cotton is estimated at over 1000 millions kilogrm., of which the United States produce about 600 millions kilogrm. The author obtained from two ripe capsules for 1000 parts cotton 2520 and 1730 parts seeds. Alcan, in his "*Traité complet de la filature du coton*," Paris, 1865, states that the proportion between cotton and seeds is very variable, but that in the mean four parts of crude cotton yield one part of spinning fibre, leaving three parts for the seed and offal, so that the annual production of seeds would be between 2000 and 3000 millions kilogrm. But if the cotton seeds are estimated only at 1000 millions kilogrm., there might be obtained at least, 150 millions kilogrm. of oil. In Marseilles, 100 kilogrm. of crude cotton seed oil are valued at 80 francs, the purified at 105 to 110 francs; the above quantity would therefore represent a value of 120 millions of francs. The 500 to 700 millions kilogrm. press cakes would probably have to be valued at 20 to 30 millions francs.

Though these figures may appear to be arbitrary, they serve, at least, to show how much remains to be done in the future for the proper utilization of these seeds.

J. M. M.

PHARMACY IN PRUSSIA AND IN THE GERMAN EMPIRE.

By FRED. HOFFMANN, PH. D.

(Concluded from page 342 of last number.)

Pharmacies and Pharmaceutists.

Up to the present time the opening of a new officine in Germany is dependent upon the concession of the government. Until the beginning of the present century, the King, afterwards the government, issued a grant (privilegium) which was permanent for the place, and could be ceded or sold to competent apothecaries. Latterly, instead of those grants, concessions have been issued which are permanent only under certain restrictions and not saleable without the consent of the government. Grants, as well as concessions, have always been made dependent upon actual necessity; hence, the number of officines in Germany, as compared with those countries in which the carrying on of every business is based upon the principle of free trade, is very small in proportion to the inhabitants. Though of late concessions have been granted with greater liberality, the average proportion of officines and population in the larger cities is approximately one for 7,000 to 10,000, and in the country one for 12,000 to 15,000 or more, inhabitants.

The value of these grants and concessions has for this reason been high from the beginning, and was in the course of time increased, in consequence of the increase of the population, wealth, consumption and value of real estate and of labor; and now, since more liberal ideas are prevailing in regard to industrial and economical affairs, this value has perhaps reached its maximum, from which possibly a reaction may take place.

The officines in Germany usually confine themselves to a purely medicinal business, that is to the compounding of prescriptions and the sale of medicinal articles; with the exception of those located in very small places, non-medicinal articles are not, or only to a very limited extent, kept. Recently, however, the sale of toilet and fancy articles and even of foreign proprietary articles has been introduced, particularly in large cities, and in places located in the thoroughfares of travel and resort, but though tolerated, is looked upon with disfavor by the government. The "medicinal tax" is uniform and obligatory for the entire country, is altered and amended annually, in conformity with the fluctuations in the commercial value of the articles; it regulates the price of medicinal articles and their prepara-

tions and fixes the charges for all requisite labor, for vessels, etc.; hence the prices for medicines are uniform throughout the country, and must be strictly figured out in accordance with the "tax"; the charges in the sales of medicinal articles over the counter must not exceed the tax valuation. The price of an officine and the real estate thereto belonging* being high, only about one-fourth of it is mostly paid at the purchase, while the balance is secured by mortgages at 5 per cent. interest. In all cases, therefore, these interests of an unproportionately high capital burden the income of an officine, and the net gain is further kept low by the low tax prices.

The arrangements and conducting of officines in Germany differ in many respects from the usages in this country, although they vary in the different sections of the empire and are influenced by the size of the cities, of the establishments and by local characteristics. The stores have no show windows and no attractive outside show whatever, except the sign as "Apotheke," and frequently the name of the owner; they have, as the only conspicuous distinction, a symbolum, generally an eagle, lion, bear, swan, a crown, etc., which are in figures of natural size over the store door and in print on the labels of the store. The inside of the store is generally remarkable for the great number of bottles, porcelain vessels and drawers, for their strict alphabetical and systematic arrangement and for the neatness, cleanliness and perfect order of the entire establishment. There is a counter for dispensing and selling, but no show cases, show bottles nor anything similar, although the shelves, fixtures and the whole establishment are mostly as practical as rich and elegant; for the preparation of prescriptions one or more prescription counters with their own shelves containing the materials mostly used. They are separated from the admittance and insight of the public, behind which, as Mr. E. I. T. Agnew in a recently published paper† significantly remarks, "a number of silent and spectacled assistants dispense the prescriptions, given to them (in the larger establishments) by the first assistant, who re-

* With perhaps a few exceptions in the largest cities where pharmacies may be in a leased locality, the house or houses in which an officine is established with all pertainments and premises belonging thereto, and often with participation in municipal lands, are always included in the saleable estate of an officine.

† London Pharmaceutical Journal and Transactions. April 15, 1871, p. 821.

ceives the prescriptions from the public and returns them with the medicine.*

The Prussian Pharmacopœia is edited by authority and order of the government, the present one being the seventh of all its editions. The Ministry of Public Instruction and of Ecclesiastic and Medical affairs appoints a commission of experts for revising and publishing new editions. This commission, consisting of men regarded as authorities in the pharmaceutical and medical professions, usually requests the most prominent physicians and apothecaries throughout the country to suggest alterations, amendments or additions, which, after due and mature consideration, are framed into a draft which once more is submitted to the medical and pharmaceutical professions for the purpose of eliciting criticism and further emendation. This is followed by the final revision, which being accomplished, the work is submitted for approval to the Ministry and hereafter also to the Imperial Chancellory, when it is published and becomes authoritative for the entire country by virtue of a prefixed imperial order, which, together with the tables added after the text, contains the legal regulations in relation to the purchase and manufacture of pharmaceutical drugs and preparations, to the keeping, dispensing and the allowed maximum doses of the powerful medicines and poisons. If a physician prescribes a larger than the highest dose allowed according to the tables appended to the Pharmacopœia, he must upon the prescription add the mark (!) otherwise the apothecary is bound to send the prescription, before dispensing the medicine, to the prescriber for verification, or in cases of urgent necessity even to another physician for endorsement.

Poisons and powerful medicines must be kept in the store as well as in the stock-rooms, in separate places and closets. The poison closets, which are always locked, are provided with different compartments and contain also scales, mortars, pill-machines and other utensils requisite for dispensing, and used only in connection with medicines containing poisons. The labels on the poison closet, on the bottles and drawers are in red letters on white ground. The prescriptions containing poisons are also kept in the poison closet and are entered into the poison book. This arrangement and separation effectually guard against mistakes, as well as against carelessness in the hand-

* In Germany the prescriptions are legally the property of the patients or the persons who paid for them, and are invariably returned with the medicine, except when temporarily retained on account of non-payment.

ling, dispensing and use of poisons. Poisons for use in the arts and trades or for the extinction of vermin, are sold only to responsible adult persons known as such to the apothecary; the purchaser has to sign an acknowledgement stating the kind of poison, its quantity, for what to be used, by whom dispensed, and to share the responsibility in case of misuse or accident by his neglect. These receipts, like the prescriptions containing poisons, have to be entered into the poison journal, and together with the same have to be kept open to inspection at the visitations or at any time by the authorities.

The Prussian Pharmacopœia is published in the Latin language, all the articles being arranged alphabetically, and is characterized by precision and terseness, as well as by profoundness and accuracy, the result of the high standard and the individual accomplishment of its authors as well as of the great care with which it has been consummated.

Besides the Pharmacopœia a compendium of unofficinal formulas, edited by two apothecaries in Berlin,* is in general use. The Pharmacopœia and, when requisite, this compendium, are the uncompromising authorities for preparing, keeping and dispensing all medicines, and the former must be in the possession of every apothecary, assistant and apprentice.

The apothecaries are obliged to prepare their pharmaceutical preparations and most of the pharmaceutical chemicals themselves, or, when the small extent of their business does not make this profitable, they have to buy them from other manufacturing apothecaries. They are, however, responsible for the goodness and quality of the entire stock of their establishments; therefore nearly every officine is provided with a more or less comprehensive laboratory, containing every convenience, reagents and utensils for practice or research. Small steam apparatus like the well known one of Beindorff are commonly used where heat is required as for decoctions, infusions, for distilling, evaporating, drying, etc. Where there are two or more assistants, they are engaged one for the store and the other for the laboratory; the former is termed "Receptarius," (prescription clerk) the latter "Defectarius;" for the sake of instruction in many places they change these respective occupations with each other monthly or quarterly. The apprentices generally work the first two years in the store and then share the labors in

* *Præparata chemica et pharmaca composita in pharmacopœa Borussicæ non recepta, quæ in officinis borussicis usitata sunt.* Ed. *Schacht et Laux*, Berlin.

the laboratory. Except in the largest cities, assistants as well as apprentices live and board with their employer; they frequently enjoy the rights and privileges as members of the family. Apprentices used to receive no salary except board, for which in former years they even paid a small compensation, either in money or by prolonged apprenticeship; recently, however, they receive towards the termination of their apprenticeship a small salary. Assistants receive board, and besides an annual salary of from 180 to 300 thalers; in large cities where they sometimes have to board themselves, they are compensated accordingly; their engagement is quarterly, with six weeks' notice in case of leave, on either part. It is customary that assistants have free every alternate Sunday and besides half a day each week; where there are several assistants in an officine they have frequently every alternate evening free. Apprentices have not quite as much time of their own, but, aside from their daily labor, they have sufficient time for private study and, during summer, for botanical excursions.

The keeping of a fountain and the sale of carbonic acid gas and mineral waters on draught in the store is forbidden; if the apothecary manufactures and sells them, he has to do it in a separate locality and by persons engaged for this branch of business.

The position of the apothecary in Germany differs from the one he holds in this country, smaller places excepted, in which he either cannot afford to engage an assistant, or is sometimes unable to obtain the services of one, the principal takes less part in the manual labors of the officine, except during the pressure of business or in the absence of the assistant; his private office, usually adjoining the store, is generally also his library and study. If two assistants cannot be kept, the principal attends also to the labors in the laboratory. His education and knowledge, his familiarity with technical and sanitary affairs and with common things, as well as his social position, make the apothecary the confidential adviser frequently applied to by the public, and make the apothecary's store in Germany, as Mr. Danl. C. Robbins so well-timed indicates, in his Drug Report of 1868,* as a desideratum also for this country—"a place for public advice and for correct information about all articles in daily use," and that without any charges. The apothecary is also the legitimate expert for the execution of chemical analyses for physicians, for the sanitary

* Proceedings of Amer. Pharmaceutical Association, Vol. XVI, page 291.

and police authorities, and in criminal cases for the courts. These engagements, the supervision and activity in the officine and laboratory, the instruction of the apprentices and the necessary attention to the pharmaceutical and general scientific literature, tax his time and ability, and require his mental and manual labor. Not unfrequently is he also elected to fill municipal and other offices, like those of trustee, juror, councilman, etc., which, in Germany, are positions of honor and trust, without any pecuniary compensation.

For these reasons and by virtue of the high standard of professional character and morals in trade and pursuit, the apothecary, like the physician, enjoys the consideration and regard of the public.

The relation between the apothecary and his assistants is that of colleagues based upon mutual esteem. "Since there are a great number of men who have passed the State's examination, but do not possess the means to buy a pharmacy, and have to wait years to obtain perhaps the concession for the establishment of a new one, and who, consequently, are obliged to serve as assistants, there is in German officines a staff of well-educated, experienced and pains-taking assistants. This fact contributes not a little to the high status of pharmacy and to the deserved regard and confidence which the pharmacist enjoys in Germany." (Agnew.) It also gives a clue to the cause why so many German pharmacists have emigrated* and established themselves in foreign countries with less restricted or free trade, mainly in Switzerland, Russia and the United States, and more or less in the Central and South American countries, and in the coast countries and islands of Asia and Africa. Although frequently separated by language and dialect, they generally win the satisfaction and respect of their employers and of the public, and are successful in their pursuit. "In Russia, according to Mr. Agnew's cited statement, by some extraordinary anomaly, German apothecaries are permitted to practice to the exclusion even of natives, unless they have been educated in a German University."†

* For some time past there has been considerable decrease in the emigration of German pharmaceutists to the United States.

† This statement is not quite correct, and may derive its erroneous origin in the fact, that comparatively a great number of apothecaries and most of the pharmaceutical professors at the universities in European Russia are Germans and that the latter lecture in the German language. It is also remarkable that the best and most widely distributed pharmaceutical journal of the Russian Empire is edited by Germans and published in the German language.

When pharmacists, educated in Germany and residing in foreign countries, especially in the United States, do not seem to possess this high moral and professional status, or when they apparently or really have renounced the same, it must be borne in mind, looking aside from mere pretenders or swindlers, that many emigrate quite young and long before their pharmaceutical education is completed, and that comparatively few are found among them who have accomplished their university studies and passed the State's examination; it must likewise be considered that the strife for existence and prosperity as well as the hardships of the stranger are severe and trying, and usually more so for the higher educated and accomplished minds.

In contrast to those colleagues who, having been born and educated here, are familiar with the customs and usages, with their country and people, the beginning of the emigrant, who is frequently without means and advising and helping friends, is wrought with many disappointments and adversities. It is a hard though necessary labor of his to acquaint himself with the language and customs, with the country and its people and their character; the harder for him who, having accomplished his pharmaceutical education in Germany, and having served there for a longer period as assistant, comes in his riper years into a new country, with new and to him strange customs, while he has parted from a position and social sphere which he cannot expect to find in countries where, influenced through unrestricted trade, the status of pharmacy and the social position of the pharmacist as well as the aims of the latter are usually less prominent and high. Such men, therefore, who shun vanity and have no favor for mere outward appearances and strive for gain as their main or sole aim, and who regard their education and maxims and their individual character in a higher light than mere articles of bargain and barter, such will often reach success only amid great difficulties which are increased and sorely felt, since confidence, independence and professional and social position are in Germany hereditary attributes of his vocation, while all these boons are secured here only through individual exertion.

SOLUBLE HYPOPHOSPHITE OF IRON.

By ROB. F. FAIRTHORNE.

I find that when hypophosphite of iron is added to a concentrated solution of citrate of ammonia it readily dissolves after being heated,

forming a green solution. This, upon evaporation, leaves an olive colored salt in scales. I make it by the following formula :

R. Ferri hypophosphitis,	3vj
Acidi Citrici,	3iv ʒij
Liq. Ammon. fort. q.s. ad sat.	

Pulverize the citric acid and saturate by addition of the ammonia. Mix the hypophosphite of iron with this in a flask and add ammonia until the mixture, which is of a yellow color, becomes dark olive, or until it is neutral to test paper. Pour this into a capsule and evaporate until it assumes a syrupy consistence, stirring to assist desiccation. Then set aside in a dry place until it solidifies. When quite hard break into small pieces and put into a bottle. As thus prepared, it has a pleasant slightly acid taste. It is very soluble in water and will be found an eligible preparation for dispensing in the form of syrup, elixir, or pill.

The above quantities produce one ounce and a half of the soluble hypophosphite of iron, and the preparation therefore contains 50 per cent. of the common hypophosphite.

ON SYRUPUS ASSAFŒTIDÆ.

By JOHN M. MAISCH.

Some years ago Mr. Rich. Peltz proposed a syrup of Assafoetida containing 15 grains of the gum resin in each fluid ounce, and which was intended as a permanent substitute for the officinal *mistura assafoetidæ*, which in the course of a few days usually spoils. During the prevalence of whooping cough, a few years ago, when assafoetida was often prescribed, I prepared a syrup, which was used by several physicians to their entire satisfaction, and which has kept well up to the present time. Instead of the boiling water used by Mr. Peltz, I have employed water at the ordinary temperature and added some orange flower water, which covers to some extent the odor of assafoetida, without masking it altogether.

Two drachms of selected tears of assafoetida are triturated with a sufficient quantity of water until three fluid ounces of emulsion have been obtained, to which half a fluid ounce of triple orange flower water is added, and afterwards six troy ounces of sugar, which is to be dissolved by agitation without the aid of heat. It is important to perfectly emulsionize the assafoetida with the small amount of water,

which, though more difficult than the preparation of lac assafoetidæ, is readily accomplished by judicious trituration with small quantities of the water, and the removal of the concentrated emulsion, before trituration is continued with another portion.

The syrup thus prepared is whitish opaque and separates, on long standing, a portion of the resin like cream, which on occasional exposure to the air acquires a pinkish hue and subsequently a deep pink color; it can be readily mixed with the syrup by agitation. The change in the color of the resin, of course, alters the appearance of the syrup in course of time, it becoming of a pinkish color after the separated resin has again been diffused in it. An officinal preparation similar to the one described, it appears to me, would be by far preferable to the milk, since it is permanent and affords an opportunity of combining assafoetida with other liquid medicines without much trouble.

SYRUPUS ASSAFŒTIDÆ COMPOSITUS.

BY J. J. RAMBO.

Editor of the American Journal of Pharmacy :

Allow me to call your attention to a formula for a syrup, I have for a number of years been in the habit of preparing, to obviate the great objection felt by most patients to the disagreeable smell and taste of assafoetida, and which has prevented to a great extent the more general use of this valuable drug. The formula I find to answer the purpose effectually, at the same time its medicinal qualities are enhanced by composition with syrup of wild cherry, possessing the valuable thereapeutic properties of both.

R. Infusi Pruni Virginianæ,	Oi.
Assafoetidæ,	℥i.
Sacch. Albi,	℥xxiv.
Magnes. Carb.	℥ii.

Rub the assafoetida and magnesia with the infusion gradually added, so as to make a uniform mixture and filter; to this, transferred to a bottle, add the sugar and agitate occasionally until it is dissolved. As a result we have a handsome syrup which does not differ in appearance from the syrup of wild cherry.

The property possessed by the volatile oils of bitter almonds, cherry laurel leaves, bark of wild cherry, &c., containing hydrocyanic acid,

of removing the odor of assafoetida has long been known, and advantage taken of this property by M. Maheir, a French pharmacist, to remove the odor from mortars and bottles with which it came in contact; but I am unaware that the fact has ever been applied to its administration as a medical agent.

New York City, August 2d, 1871.

ACTION OF CARBOLIC ACID AND CREASOTE UPON THE ORGANISM.

BY DR. TH. HUSEMANN.*

The author discusses the various physiological and toxicological observations made by medical men with the two chemicals, which, by chemists, physicians and pharmacists, have been frequently confounded. Dr. J. Ummethun has instituted comparative experiments upon frogs, pigeons, cats, rabbits and dogs, and from these and other observations the author arrives at the following conclusions:

1. Both creasote and carbolic acid exert a decided local and general action upon the animal organism.

2. The local effect of carbolic acid, undiluted or in concentrated solution, is more energetic than that of creasote; the former is caustic, while the latter merely causes irritation and inflammation. The influence upon the mucous membrane of the stomach and crop is more intense with the former.

3. The toxical effect of carbolic acid is likewise much stronger. Its lethal dose in subcutaneous injection was found to be 6 mgms. for frogs and 0.1 gm. for pigeons; and when given internally 0.45 gm. for rabbits, 0.5 gm. for cats and 2.5 grms. for medium sized dogs. The injection of creasote proved fatal only after doses of 0.03 gm. in frogs, 0.2 gm. in pigeons, and, when internally applied, rabbits and cats died after doses of 2.5 grms. and 60 drops. The smallest lethal doses to man of carbolic acid and creasote cannot, at present, be stated, because in most instances of poisoning by these substances excessively large quantities had been used.

4. The constitutional effects of both poisons are manifested by nervous disorders, but in a very different manner. Carbolic acid produces at first tremulousness, then spasms of such a severity as is

* Reprint from *N. Jahrbuch f. Pharmacie*. Communicated by the author, translated and condensed by the Editor.

observed only from few poisons (picrotoxin, codeia); they continue often for several hours, if the quantity of the poison was not excessive, and turn into palsy, which is followed by death. The symptoms of creasote poisoning are different; in the beginning, considerable uneasiness sets in, then remarkable symptoms of difficulty of breathing, in a short time followed by great prostration and paralysis, which often lasts for several hours before death ensues, but always without any signs of spasms. This difference in the toxical effects is so considerable that it alone is sufficient to remove all doubt about the non-identity of carbolic acid and creasote.

5. The post-mortem examination reveals two symptoms, which, in like manner, prove the distinction of the two substances.

The blood of animals poisoned by carbolic acid is always liquid, even if dissection has taken place a considerable time after death; this is one of the signs of death by suffocation, and in the case of carbolic acid, of poisoning produced by insufficient respiration, caused by the peculiar effects upon all the muscles. On the other hand, the blood of animals poisoned by creasote, is invariably characterized by an increase of its coagulability, so that, even if the dissection was undertaken immediately after death, the blood coagulated at once; tough and hard blood congelations were often observed in the heart and the larger veins, but never after death by carbolic acid.

Another peculiarity of creasote poisoning, not observed after carbolic acid, is found in the lungs where hardened circumscribed spots of larger or smaller dimensions are observed, while after carbolic acid poisoning usually shrinking and paleness of the lungs are seen, but nowhere signs of inflammation.

Undisputable cases of poisoning of men by creasote are so rare, and mostly so imperfectly described, that it is difficult to decide whether the symptoms and effects harmonize with the observations on mammals, and whether the same characteristic distinctions from acute poisoning by carbolic acid may be observed. The case of creasote poisoning described by Müller,* showed these effects.

There are cases on record where inflammation of the lungs was observed after death by carbolic acid. In the one related by Taylor,† the caustic effects and inflammation were doubtless caused by direct

* Württemb. Corresp. Bl., 1869, No. 42.

† Guy's Hosp. Rep., 3 Ser., xiii, 233.

contact of the acid with the respiratory organs. In the case described by Gavin P. Tennent,* where half an ounce of Calvert's carbolic acid No. 4 was taken by mistake, death occurring after a month, it cannot perhaps be solely attributed to the effect of the poison; moreover, it is not improbable that the impure carbolic acids of commerce may be variable mixtures of carbolic acid and creasote.

TESTING PETROLEUM.

BY PROFESSOR ATTFIELD.

In ascertaining the temperature to which a specimen of petroleum must be warmed before its vapor can be ignited, different experimenters obtain different results. The fact is this "flashing-point" varies according to circumstances; unless, therefore, two operators work under exactly similar conditions, their reports will not coincide. In the British Petroleum Act of 1868 somewhat minute directions for applying the flashing test to samples of petroleum are given in a schedule. As originally drawn up, those directions were supplied to the Government by Mr. Abel, Dr. Letheby and myself, and related to the testing of the liquid when contained in a three-inch half-filled cup. After they left our hands, they were made to apply to petroleum contained in a two-inch full cup; the protection from draughts afforded to the surface of the liquid by the upper part of the half-filled cup being substituted by that of a screen so placed round the full cup, that the efficiency of the original directions should not be affected. That is to say, a sample of petroleum flashing at 100° in the unscreened half-filled cup should flash at 100° in the screened full cup. This should be borne in mind by all persons testing petroleum, as the screen can be so constructed or so arranged as to cause flashing-points to be above or below the standard now given. Just before the Act passed, I pointed out to the Government that the alteration would lead to endless disputes, and was assured by letter (which I still possess) that the construction of the apparatus was only varied in a point of detail to meet an objection; that, in short, the screen was to be so efficiently disposed as not to interfere with the standard previously fixed. I may add that one year later (June 1869) in a Bill for consolidating and amending the Petroleum Acts of 1862 and 1868, this standard was maintained with the concurrence of the

* Glasgow Med. Journ., Novbr., 1870.

wholesale and retail petroleum traders, a *covered* screen (which gives results similar to those obtained in the half-filled cup) being directed to be employed. It is to be hoped that this standard, which has been accepted by all parties interested in the sale of mineral oils, will rigidly be adhered to in any attempt at further legislation respecting these liquids. In a Bill now (June 1871) before Parliament, the oils are directed to be tested in a *covered cup*, and the defining clause describes "petroleum" as being a certain liquid giving off inflammable vapor below 85° Fahrenheit. It is to be expected that this is the exact equivalent of the foregoing standard—that petroleum flashing at 85° in the closed vessel would flash at 100° in the open vessel. If not, one section or other of oil traders will probably prevent the maturation of the Bill; a result to be avoided if possible, for fresh legislation is sorely needed. My own testing apparatus is so constructed as to give results such as just indicated, results which I believe to be in exact accordance with the intentions of the Legislature. I may state, shortly, that this is a modification of what is known in trade as "Miles's instrument," with a screen five inches high; no cover to the screen, and with the front third of the smoke-holes of the outer casing permanently closed. The removal of the cover of the screen produces no difference in the flashing-point of a sample of petroleum, the walls of the screen being sufficiently high to protect the cup from draughts in an ordinary room; still I operate without it, to avoid objections that might be raised against the apparatus in a court of law, no special mention of a cover to the screen being made in the Petroleum Act (1868). I close up the front "smoke-holes" (as I called the holes through which escape the products of combustion of the flame that heats the water-bath), in order to avoid a slight inconstancy of results caused possibly by draughts from these apertures. Miles's instrument, as sold to the public, gives results which are close to those I obtain by the slight modification I have described, but the latter gives me those results with greater constancy and certainty.—*London Pharm. Jour.*, July 15, 1871.

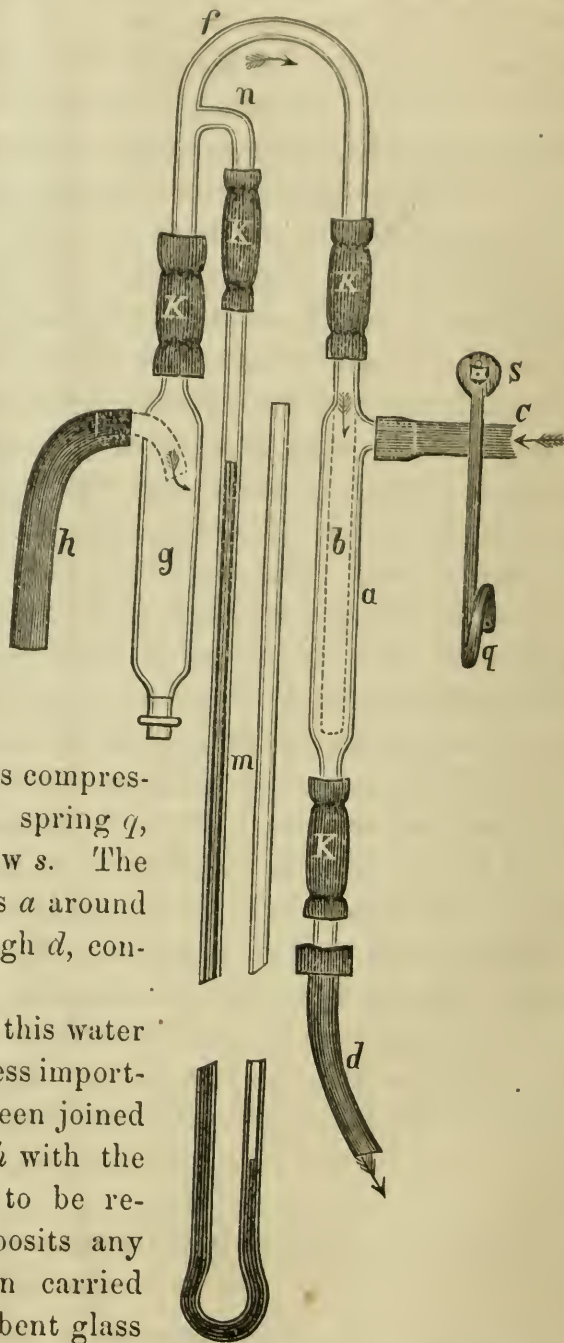
BUNSEN'S WATER-AIR PUMP AND ITS USE FOR FILTERING LIQUIDS.

The principle of this apparatus is not a new one; it depends upon the action of the water, while falling, to carry air down with it, and

thus produce, under proper precautions, a partial vacuum. The water-blast, the mercury air-pump, and the pneumatic apparatus for conveying letters and packages from one place to another, are constructed upon the same principle, a partial vacuum being made by the fall of water or some other liquid.

The most convenient form of a water air-pump, adapted for chemical operations and for experiments in natural philosophy, is shown in the cut. *A* is a glass cylinder, to the upper part of which a narrower glass tube *b* is hermetically fused, so that its lower end reaches to near the narrowed portion of *a*, while the upper end is connected with the heavy gum tubing *k*; another gum tube connects *a* at the base with the lead pipe *d*. Near the top of *a* a short glass tube is inserted, to connect it with the water by means of the gum hose *c*, the flow of the water being regulated by more or less compressing the hose with the steel spring *q*, which is worked by the screw *s*. The water entering through *c*, fills *a* around the tube *b*, and runs off through *d*, continually sucking air out of *b*.

These are the main parts of this water air-pump, all others being of less importance. The apparatus having been joined by means of the gum tubing *h* with the vessel, from which the air is to be removed; the air enters *g*, deposits any moisture that may have been carried over, and passes through the bent glass tube *f* into *b*, from where it is continually removed by the falling



water. The reduction of pressure in the apparatus is ascertained by a manometer *m*, consisting of a bent glass tube containing mercury, and with a scale in centimeters on one arm, a piece of gum tubing connecting it with the tube *n*, joined into *f*; as the air is removed from the apparatus, the mercury must rise in the manometer, and by comparison with a good barometer hanging alongside, indicates the rarification of the air; suppose the barometer to show 720 m. m. and the manometer 680 m. m., the rarification of the air will be $720 - 680 = 40$ m. m. mercury column. If vessels containing ammoniacal or acid vapors are to be exhausted, a wash bottle containing sulphuric acid or an alkali may be inserted before *g*.

The apparatus is best made of strong glass; it is only about 1 meter high and 20 c.m. broad, and may be fastened upon a board against a wall. To avoid breakage, in consequence of the unequal expansion through change of temperature, the parts *b*, *f*, *g* and *m* are connected with each other by gum tubing, which must be very thick, including the hose *h*; with an outside diameter of 14 m. m., the bore is only 3 m. m., to avoid its being compressed through the outside pressure of the air. The lead pipe *d* has an inside diameter of 8 m. m. The pressure of the air being equal to the weight of a column of water of about $10\frac{1}{3}$ meters, it is evident that a vacuum cannot be produced unless the water has a fall of not less than that distance, and it is advisable, whenever possible, to exceed that height, if necessary by running the lead pipe down to the bottom of a well.

The advantages of the water air-pump over others working with a piston are evident; it is cheap, automatic in its action, requires few or no repairs, and is not affected by corrosive vapors. For these reasons it is particularly adapted to filtration in chemical and photographic laboratories. To use it for such a purpose, a bottle is required with a twice perforated rubber stopper. One of the perforations receives the funnel with the filter, the other one is connected with the air-pump by means of a bent glass tube and the gum hose *h*. Filtering paper being too weak to withstand the pressure, the filter is strengthened by resting it on a cone of platinum bent out of one piece of foil.*

The liquor runs from the filter almost in a continuous stream. The precipitates are readily washed and finally obtained nearly dry. Bun-

*See also M. Tichborne's paper on page 313 of this Journal.

sen filtered, washed and dried two precipitates of a like quantity and quality, one in the ordinary way, the other with the water air-pump; the former required 7 hours, the latter 13 minutes; in another instance 15 hours and 32 minutes respectively were required. These figures speak for themselves. If it is also remembered, that evaporation and drying are accelerated in a rarified space, it is obvious that the apparatus described may be advantageously used for chemical laboratories for a great many operations.—*Jacobsen's Industrie Bl.*

ON THE SOURCE OF THE *RADIX GALANGÆ MINORIS* OF PHARMACOLOGISTS.

BY HENRY FLETCHER HANCE, PH. D., &c.*

Whilst it is, I believe, fully established that the "Greater Galangal" is produced by *Alpinia Galanga*, L., the plant which yields the lesser kind has hitherto remained altogether doubtful, though some writers have hazarded the opinion that it is the rhizome of *A. chinensis*, Rose. It is now more than twelve years since my attention was first drawn to the subject by my esteemed correspondent, Mr. Daniel Hanbury, who begged me, if possible, to set the question at rest.

I have never lost sight of Mr. Hanbury's wishes; but, although the drug forms a considerable article of export from Southern China,†

* Reprint from the Linnæan Society's Journal, xiii, communicated to the Amer. Journ. Pharm.

† Galangal is not used in British medical practice; and, even on the Continent, Endlicher speaks of it as "exoleti fere usus." The following statement of the export of this drug during the last three years is compiled from the official returns published by the Foreign Inspectorate of Maritime Customs, the quantities and value being, however, for greater convenience, reduced to British weight and currency:

Years.	From Canton.		From Shanghai.		Total.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	lbs.	£ s. d.	lbs.	£ s. d.	lbs.	£ s. d.
1867	32,800	123 10 10	79,200	354 9 9	112,000	478 0 7
1868	15,233	57 10 0	162,308	1149 3 5	177,641	1206 13 5
1869	None		370,800	3046 16 9	370,800	3046 16 9

From this table it would appear that the demand for Galangal is increasing; but I cannot explain why the export of a product of the extreme south of China should be transferred from Canton (the nearest port) to Shanghai, situated 80 further north.

my want of success will not seem surprising when it is borne in mind that many vegetable products shipped from Canton come from distant parts of the empire, and pass through a number of hands before they reach those of the native merchants, and that these latter are quite incapable of comprehending the interest attaching to the solution of a doubtful scientific point, or of troubling themselves about what seem to them matters of aimless and puerile curiosity. Those who have tried know well how difficult it is to get reliable information from the natives, who will frequently invent answers, rather than seem ignorant, and are especially prone to reply in the affirmative to direct or leading questions, as if they supposed the object of an inquirer was rather to obtain the confirmation of his own views than to elicit the truth.

In November, 1867, I had the opportunity of making a visit—at the invitation of, and in company with, the Commissioner of Maritime Customs at Canton—to the Island of Haenan. During this excursion, and while at anchor off Pak-shá, a fishing-village on the south coast of Kwangtung, about seventeen miles from, and rather to the east of, Hoi-haú, on the north coast of Haenan, we landed, and some of the party went about six miles inland to a ruinous walled city named Hoi-on; but, being slightly indisposed, I preferred botanizing over the low hills near the coast. On their return, Mr. Sampson, who was one of the party, informed me that they had seen a large quantity of what he took for ginger (but which he described as bearing the inflorescence on the leafy stems) under cultivation; and another gentleman produced—asking if I knew what it was—some pieces of rhizome, of which quantities had been passed, exposed to the sun in shallow bamboo baskets to dry. This I immediately identified as Galangal; and as some inquiries made of a linguist who had accompanied them left no doubt that the rhizome belonged to the plant seen growing, I had the mortification of knowing that the true Galangal plant had been met with, and no specimens obtained, whilst our arrangements did not admit of further delay.

Fortunately, however, at the close of the year, another expedition to Haenan was planned; and on this occasion Mr. E. C. Taintor, an American gentleman in the service of the Imperial Customs, to whom I was indebted for the specimens of the Oaks on which the North Chinese wild silkworm is fed, respecting which I have already communicated a paper to the Society, accompanied it. Mr. Sampson took

great pains to indicate to Mr. Taintor the locality where the plant had been seen ; and I am happy to say that Mr. Taintor's researches were crowned with complete success, he having brought back fine living plants with the rhizomes attached, an examination of which, and comparison with authentic specimens of the drug from Mr. Hanbury and others, procured here, leave no doubt whatever of the species being the true officinal one.

The following account from Mr. Taintor's notes will explain how he obtained the plant: "The locality is about one mile north of the small village of Tung-sai, situated upon the Bay of Pak-shá, at the southern extremity of the peninsula of Lui-chau-fú, or Lei-chau-fú, and directly opposite Hoi-haú, the port of Kiung-chau-fú in Haenan. The plant was growing at an elevation of about 100 feet above the level of the sea, in a very dry, hard, red soil, evidently composed of disintegrated volcanic rock. The plant grew in masses, which had been originally planted and cultivated, but were now apparently neglected and running to waste. The roots were in dense masses of sometimes more than one foot diameter, and with as many as twenty-five or thirty stalks springing from each. Rarely more than one or two of these stalks, however, bore flowers at the date of collection, January 5th. My plan, to insure that I was getting the real plant, was to write the two characters *Liang-kiang*, (*mild or gentle ginger*, the Chinese name), and tell an intelligent-looking villager that I wanted to see the flower. He led me, without the least hesitation, directly to the spot where I obtained the plants."

I must add that Mr. Swinhoe has since found the plant growing wild in dense jungle on the south coast of Haenan, one of his specimens being now before me, and that he has informed Mr. Hanbury, as I quite recently learnt from that gentleman, that there is a good reason for believing that its fruit is the *Bitter-seeded Cardamom*, figured in Mr. Hanbury's valuable paper* "On some rare kinds of Cardamom."

In endeavoring to determine the specimens collected by Mr. Taintor, I found in my herbarium, for the purpose of comparison, only the Hongkong species of *Alpinia*, and a few Moluccan ones, received from M. Teijsmann, of the Buitenzorg Garden ; whilst, as regards books, I was restricted to Roxburgh's "*Flora Indica*," the writings of

* Pharm. Journ. xiv, 418, fig. 8.

Wight and Miquel, and the very useful "Prodromus Monographiæ Scitaminearum" of Prof. Horaninow, published at St. Petersburg in 1862. With these somewhat slender *adminicula*, I was soon satisfied that the Galangal was either referable or else very closely allied to *A. calcarata*, Rose. (which Roxburgh states to have been introduced from China into the Calcutta garden); and though I found some discrepancies between the Kwangtung specimens and the description of *A. calcarata* drawn up from the living plant by Roxburgh,* whose accuracy is so well known, yet these were apparently so few and unimportant that my chief ground of hesitation as to their identity was the extreme improbability that the rhizome of a plant widely cultivated within the tropics, and growing and flowering luxuriantly in the Calcutta and also, according to Thwaites,† in the Peradenia garden, should have remained for so long a period unrecognized, if really the same as the Lesser Galangal of commerce.

It being evident that this question, of so much interest in itself, could not be solved with the means at hand, whilst an approximate judgment would be valueless, I determined to let the matter lie over until I had access to more complete materials.

Since then I have received, through the kindness of Mr. Hanbury, a sketch, with a single flower colored, of the plate of *A. calcarata*, given in Roscoe's "Scitamineæ," and a full-colored copy of that in the second volume of the "Botanical Register;" whilst my ever liberal friend, Dr. Thwaites, has sent me living rhizomes of the same species, whence have been reared fine healthy plants, though they have not as yet flowered, and, besides, copious specimens both of the flowering plant for the herbarium, and of the dried mature rhizomes. Mr. Taintor's Galangal plants have also again blossomed under culture, but set no fruit;‡ so that *fresh* flowering specimens of *A. calcarata*, and fruit of both species being alone wanting, I may claim to have had at my disposal as good materials for comparison as ordinarily fall to the lot of a descriptive botanist. I have, to the best of my ability, made a careful and exact comparative examination of living flowerless plants of each kind (including the rhizome), and of the mature rhizome of each; whilst I have compared the fresh and also

* Flora Indica, ed. Carey, vol. 1, p. 69.

† Enum. Pl. Zeyl. p. 320.

‡ Zingiberaceous plants, when under cultivation, even in localities where they are native, are far less disposed to fruit than the same species in a wild state, the flowers usually dropping off as soon as they fade.

the dried flowering plant of the Galangal with separate dried flowers, as well as herbarium specimens of the entire inflorescence of *A. calcarata*. The result is, that I am now entirely satisfied that the plant which furnishes the Lesser Galangal root is, though very closely allied to *Alpinia calcarata*, Roscoe, a perfectly distinct and well-defined species, the two differing in several particulars of structure, as well as in sensible qualities, as the following brief comparative notes will show:

Alpinia calcarata.

Dried mature rhizomes chestnut-brown,* conspicuously furrowed longitudinally; when cut across, with a stronger odor than Galangal, the cut surface remaining of a fuscous hue; of a bitter aromatic taste, much like cardamoms, with a distinct flavor of rhubarb superadded, but destitute of heat. Sheaths and bases of the young living stems or shoots more or less tinged with pink; tasting somewhat like rhubarb, but without any hot flavor. Leaves of a full deep green; aromatic, but not hot in taste. Ligulæ 3-6 lines long, rounded or truncate, and frequently bifid at apex. Racemes compound.† Flow-

Galangal.

Dried mature rhizomes externally rufous-brown, only very finely striated longitudinally; when cut across, surface becoming rufous; aromatic and very warm in taste, as if made up of ginger and pepper, with a recognizable camphoraceous flavor, leaving a powerful sensation of heat in the mouth when chewed.† Bases of young shoots white; tasting very warm. Leaves of a rather lighter green; hot in taste. Ligulæ 9-15 lines long, acutish. Racemes quite simple. Flowers without a bractlet. Labellum without the slightest trace of yellow, its veins very fine.

* Described by Roxburgh as somewhat wooly and pale-colored. Dr. Thwaites and myself find them perfectly smooth, both when young and at full growth. The young fresh rhizomes of both plants are quite white and succulent; but these can scarcely be alluded to: again, some dried rhizomes kindly supplied from the Calcutta garden are cinnamon-colored; but these are of small diameter, and evidently immature. The full-grown ones from Ceylon are, as described, of a chestnut hue externally.

† Cæsalpinus characterizes the rhizome very accurately, though briefly, as "subrufa intus et extra, sapore Piperis, modice odorata" (De Plant. lib. iv. c. 62).

‡ So described by Roxburgh, and so I find them in all Dr. Thwaites's specimens; but represented as simple in Wight's plate (Ic. Pl. Ind. Or. vi, 2028) and also apparently by Roscoe, and in the "Botanical Register."

ers with an oblong concave bractlet at their base.* Labellum "yellowish, minutely punctated with dull red, and with veins of a deep dull red color" (Thw.),† its veins thickish.

The fruits of both species, when known, may afford other marks of distinction.

A description of the Lesser Galangal plant, for which I propose the name of *Alpinia officinarum*, drawn up very carefully from living specimens, may fitly bring these notes to a close:

ALPINIA OFFICINARUM, n. sp. Rhizomatibus longe repentibus atque intertextis cylindraceis 6-9 lineas circiter diametro rufo-brunneis glaberrimis squamis magnis pallidioribus fibrosis demum secedentibus annulosque irrugulares sinuosos albidos relinquentibus copiose instructis, caulibus $2\frac{1}{2}$ - $3\frac{1}{2}$ -pedalibus, foliis bifariis longe vaginantibus coriaceis glaberrimis nitidis anguste lanceolatis basi angustatis sed non petiolatis exquisite attenuatis 9-14 poll. longis medio 10-12 lin. latis ligula magna (9-15 lin. longa) oblonga scariosa erecta basi decurrente vaginas marginante apice acutiuscula auctis, racemo terminali simplici erecto densifloro brevi (plerumque haud 4-pollicari) foliis superato, rachi tenuiter tomentella, bracteis‡ spathaceis involucrantibus binis exteriore viridi nunc folio abbreviato coronata interiore alba ambabus demum extus stramineo-arefactis nitidis intra margineque scariosis cucullatis flore pluries longioribus vel simul

* Described by Roxburgh as "solitary, boat-shaped, white, 1-flowered," and shown in the Bot. Reg. plate, and also (so far as I can make out from the sketch) in that in Roscoe, but omitted in Wight's figure. Quite conspicuous in all Dr. Thwaites's specimens.

† Roxburgh describes the labellum as "deeply colored with dark purple veins on a yellow ground." The Bot. Reg. plate represents it as crimson in the centre, with a broad yellow border, into which veins from the centre run, though not very conspicuously; whilst my copy of Roscoe's figure gives an oblong yellow centre dotted with crimson, and a broader margin striated with red and yellow, the latter color slightly predominating. Considering the variation in color of the flowers of *Canna*, and the differences of shade and marking in the labella of many cultivated epiphytes of the allied order *Orchidaceæ*, it is perhaps unsafe to attach any considerable weight to a character of this kind.

‡ Though these exist equally in *A. calcarata*, it is curious that Roxburgh makes no allusion to them; he would have called the two an *involucre*. There is likewise no indication of them in the figures of the "Botanical Register," Roscoe, or Wight.

apicibus invicem convolutis basique solutis calyptratim secedentibus vel interiore paulo serius decidua, floribus abraeteolatis arete subsessilibus 15 lin. longis, perigonio exteriori albo tubuloso tomentello apice breviter 2-3-lobis lobis scariosis rotundatis ciliatis, perigonii interioris albi tubo extus intusque tomentello lobis oblongis obtusis cucullatis 8-11 lin. longis 2-2½ lin. latis tertio paululum majore et latiore, labello albo medio striis vinoso-rubris juxta apicem in maculam distinctam flabellatim dilatatis percurso aliisque pallidioribus a lineis medianis interioribus marginem versus pinnatim radiantibus elegantissime picto sessili ovato integro apice acutiusculo vel bilobo crispulo-eroso 10 lin. longo 8-9 lin. lato basi corniculis binis rigidulo-carnosis subulatis subreflexis 1-1½-linealibus pilis capitatis consitis basique glanduloso-incrassatis conniventibus tubum occludentibus aucto, stamine labello dimidio breviori, ovario densissime albotomentoso, stylo apice sensim dilatato paulo ultra antheram producto, stigmate concavo margine ciliato, glandulis epigynis ¾-linealibus luteolis oblongis apice truncatis integris vel lobulatis.

Habitat in interioribus insulæ Haenan; vix dubie etiam in silvis australiorum imperii Sinensis provinciarum, ubi commercii ergo large colitur (Exsicc. n. 16866).

British Vice-Consulate, Whampoa, Sept., 1870.

ENGLISH CHLOROFORM IN GERMANY.

BY DR. F. VERSMANN.

Many professors of German laboratories and proprietors of chemical works have adopted the valuable plan of communicating to the journals, from time to time, observations and points of practical experiences made in the course of their investigations; and it would be well if this plan was imitated here, as much labor and trouble may often be saved by this liberal exchange of practical information.

This arrangement, like everything good, is, however, not quite unalloyed, for it sometimes happens that statements are published which are of little use, or which, on examination, are found to be incorrect. The last is the case with a communication in a current number of Buchner's "*Repertorium der Pharmacie*," and as this special incorrectness bears on an English article, it may not be out of place to rectify it. Mr. E. Schering, in his practical communication, asserts that abroad English chloroform, sp. gr. 1485, is, for anæsthetic purposes, preferred to the German (the Prussian Pharmacopœia prescribes a specific gravity of 1500) because of its greater stability.

According to Mr. Schering, the presumption was natural that the English product had been obtained from chloral, and this idea was actually verified by Mr. Hager's investigation, who found it to be chloral chloroform with an addition of $\cdot 75$ to $\cdot 80$ per cent. of alcohol; but not a word is said as to the manner in which this result had been arrived at. Mr. Schering refers his readers to his price list of last year, in which he quotes chloral chloroform, and he informs them that he now keeps an article of sp. gr. 1485, identical with English, or, according to his own words, adulterated with alcohol.

Mr. Hager actually distinguishes the two preparations; he says, the chloral chloroform becomes slightly colored on addition of strong sulphuric acid, whereas the pure, obtained from hypochlorite of lime and alcohol, remains colorless.

Another difference is said to be, that ordinary chloroform, on being allowed to evaporate on a watch-glass, gives off, with the last few drops, a distinct foreign smell, indicating the presence of other chlorine compounds, which may be the cause of the ready decomposition of the chloroform when exposed to the light, and this is not the case with the product obtained in the new manner.

The manufacture of chloral in quantities and at a reasonable price, is of so recent a date that it is scarcely necessary to recall the fact that seldom, if ever, the supply of any chemical compound responded so readily to the demand, as with the chloral. The price of chloral hydrate was, at the commencement of last year, 112s. a pound; before the year was out it had gone down to 12s., and it is now sold at 5s., and even less.

Surely at this time when the hydrate commanded such high prices and the manufacture was in its infancy, no English manufacturer would have dreamt of converting chloral into chloroform, and with the present low prices and the high duty on alcohol, he is all but excluded from the market; it is well known that very nearly all chloral hydrate is imported from Germany, and I believe I am correct in stating that only two English firms do manufacture it in quantities.

Mr. Schering's whole argument necessarily falls to the ground, and for the best of reasons, the manufacture as assumed by him would never pay. It would perhaps have been wiser if he had prided himself upon the purity of his product instead of boasting of selling an adulterated article. His tests are of course worthless, because even less than 1 per cent. of alcohol will be sufficient to produce slight

coloration with sulphuric acid, but it is scarcely necessary to treat the matter as a chemical question.—*London Pharm. Journ.*, July 22, 1871.

CLEARING NUTS.

(Strychnos potatorum.)

BY M. C. COOKE, M. A.

The clearing nuts of India* are the produce of a tree which is described as larger than that of the nux vomica. It is without thorns or tendrils; leaves very shortly petioled, elliptic, acute, glabrous, membranaceous, five- and almost penninerved; corymbs axillary, opposite, shorter than the leaf; corolla hirsute within; berry one-seeded; flowers greenish-yellow, fragrant. It is found on the Coromandel coast, the Concans and the western Ghauts, flowering in April.

The native names given by Moodeen Sheriff are,—*Nirmali*, Hindustani, Bengali and Gujerati; *Chilbinj*, Dukhni; *Tetran Kottai*, Tamul; *Chilla-gingalu*, Telugu; and *Tetran-parala*, Malayalim.

The fruit, says Ainslie, when very young, is made into a preserve and eaten, but is reckoned, in its mature state, amongst the emetics of the Tamul doctors of southern India, given in powder in the quantity of about half a teaspoonful. The dried seeds are used for the purpose of clearing muddy water, one of them being usually rubbed hard for a short time round the inside of the earthen pot; the water is afterwards poured into it, and left to settle. The impurities soon subsiding, the water will be found clear, tasteless, and wholesome. Roxburgh adds that the natives never drink clear well-water if they can get pond or river water, which is always more or less impure, according to circumstances. These seeds are therefore constantly carried about by the more provident part of our officers and soldiers in time of war, to enable them to purify their water. They are easier obtained than alum, and probably less hurtful.

The tree grows to a larger size than the nux vomica, and is not so common, being only found amongst mountains and woods of great extent, flowering during the hot season. The berry is shining, and black when ripe, containing only one seed, whereas that of nux vomica is many-seeded. (See PHARM. JOURN. 1st. ser. Vol. IX.) Roxburgh says the wood is hard and durable, and is used for various eco-

*See also June number Amer. Jour. Pharm, page 241.

nomical purposes. The seed is broadly lenticular, about half an inch in diameter and a quarter of an inch in thickness; of a dirty whitish grey color, and covered with a thick coating of delicate appressed hairs. These hairs are in bundles of from three to six, agglutinated together longitudinally; but when separated each hair is seen to be a simple, pointed, cylindrical cell. To the naked eye, the surface of the seeds appears to be mealy rather than hairy.

The seeds in powder, mixed with honey, are applied to boils to hasten suppuration; also with milk in sore eyes. When used as an emetic in southern India, the seeds are given in powder. Dr. Kirkpatrick says that the seeds are employed as a remedy in diabetes; and they are mentioned in the Taleef Shereef as useful in gonorrhœa, etc. Their chief use, however, consists in their application to the clearing of muddy water.

It is not so much the seed as the pericarp that commends itself to our notice. The former is not employed medicinally, whilst the latter is in common use amongst the natives as an emetic.

The use of the fruit as an emetic seems to have been wholly confined to the native practitioners. It has been supposed that the reason why it has never acquired repute is the improper way in which it is administered. The whole fruit is generally powdered, and given in about half a teaspoonful doses. It is not surprising, therefore, that failure should take place, since the large seeds are not emetic, the dry pulp of the fruit and the pericarp alone possessing that property. If these are used separately, the result is said to be very satisfactory.

When sold separately, the emetic portion of the fruit is found in the bazaars in two conditions. In one condition it is in thin, scaly, and shell-like pieces, which are shining externally, and of a greenish or yellowish-brown color. This is the pericarp removed when the fruit is dry. In the other condition it is formed together with the mucus into large balls or masses weighing about one pound. In this condition it contains a large quantity of dry mucus, and is much superior in action to the other form. Mr. Moodeen Sheriff states that the dry mucus appears to be more efficacious in dysentery than ipecacuanha.

The dose of the simple powder of the pericarp, prepared in the usual way, and kept in a stoppered bottle, is from 40 to 50 grains as an emetic, and from 15 to 30 in dysentery.—*London Pharm. Journ.*, July 15, 1871.

THE THEORY OF DISINFECTANTS.*

BY T. P. BLUNT, M.A., F.C.S.

The light which has recently been thrown upon the nature of contagion and infection by the labors of Pasteur and others, the results of which have been ably summarized by the President of the British Association in his late inaugural address at Liverpool, seems to point the way to clearer and more comprehensive views than those commonly entertained at present regarding the operation of the substances known as disinfectants.

These may be divided into two classes:—1. Those which act by the oxidation and total destruction of the virus contained in infected matters, together with the foul gases which usually accompany it, and which are, in fact, nature's danger-signals of its presence. 2. Those substances which do not possess the active chemical properties of the first class, yet are proved by experience to have a similar power of arresting and checking the spread of infection. The latter are, for the most part, the more ancient and popular, having apparently in some cases been suggested by a just but unreasoning instinct. Thus we find that the use of sulphurous acid, as evolved from burning sulphur, dates even from Homeric days; while the burning of pitch and aromatic gums for disinfectant purposes has an origin at least equally remote.

An attempt will be made, in the course of the observations which follow, to bring the operation of the large majority of the latter class under a general law which shall furnish us with an explanation of their true character. This is especially desirable, since it is to be feared that, for want of such an explanation, many good and valuable disinfectants have been condemned by chemists, on theoretical grounds, as mere deodorizers,—not assailing the virus of infected substances, but rather masking their poisonous character by precipitating their offensive gases. An objection to this view at once meets us, in the utter disproportion between the volume of the gases to be fixed and the quantity of salt practically found sufficient for the object required, while it breaks down altogether when applied to such disinfectants as the new "chlor-alum" or chloride of aluminium of Mr. John Gamgee, or the well-known carbolic acid. Before endeavoring

* Read before the annual meeting of the Shropshire Scientific Branch of the British Medical Association.

oring to supply a more probable theory, it may be well to remind you that the researches already mentioned have established the fact that contagion and putrefaction, if not actually identical, are processes so closely allied that they require exactly similar conditions; the latter appearing to consist of a kind of disease propagated from particle to particle of a decomposing substance, and ending in its entire destruction. Hence it may be inferred with perfect safety, that any agent which arrests putrefaction is capable also of abolishing the properties of contagion and infection.

This conclusion at once puts into our hands a valuable instrument of research; for while it is difficult, and often impossible, to investigate directly the disinfectant action of a substance, the inquiry being surrounded by innumerable sources of error, the properties of an antiseptic are perfectly well defined and open to the clearest demonstration. Thus, in the case of the two bodies mentioned above, carbolic acid and chloride of aluminium, the antiseptic action of the first is well known, and has long been usefully applied; while that of the latter is maintained in the most positive manner by its introducer, Mr. John Gamgee, who certainly brings forward overwhelming proof of it in his recorded experiments upon meat and fish; and hence, on the ground given, we are justified in regarding these substances as good and useful disinfectants. It may be stated, in passing, that the deodorizing power which these and other similar bodies possess is probably due to their antiseptic action; the offensive gases of decomposition being sooner lost by diffusion, and their fresh production being entirely suspended.

Let us now proceed to a consideration of the origin of the remarkable properties which we have described. This appears to have been traced with some degree of probability, in the case of carbolic acid, by Dr. Joseph Hirsch, the writer of an article which appeared in the *Chemical News* about the end of February, 1869. He advances the bold and ingenious speculation, that the disinfectant action of that substance depends upon its power of coagulating albumen. He supposes that the acid finds its way into the minute organisms, which propagate disease by diffusion through their investing membrane; that it coagulates the albumen which they, in common with all germinal matter, contain as a necessary constituent; and thus practically destroys their vitality as perfectly as immersion in boiling water terminates that of an egg.

In order to test the accuracy of the view thus enunciated, I selected a substance of which the albumen-coagulating power was well known, and examined it with regard to its antiseptic, and, therefore, disinfectant properties. The substance chosen was nitro-muriatic acid, which has long been in use as a test for albumen in urine. The experiments were conducted as follows:

a. Two samples of fresh healthy urine, passed at the same time, each measuring about one ounce, were placed side by side. To one of them six drops of strong nitro-muriatic acid were added. In a few days, the unacidified specimen was covered with a thick crust of mould; while that to which the acid had been added was unaltered, except by a slight darkening of color and deposition of crystals of uric acid.

b. Some fresh meat was pounded into an emulsion with water,—the whole divided into two equal portions of about six drachms each. To one of them six drops of strong nitro-muriatic acid were added, as in the former case. In a day or two, the unacidified sample was quite putrid and offensive; while that to which the acid had been added retained the smell of fresh meat, and continues to do so still, after the lapse of nearly a month.

I now proceeded to test some of the salts commonly used as disinfectants, with respect to their possession of this power of coagulating albumen. The examination was conducted thus: One part of the salt to be tested was dissolved in one thousand parts of distilled water, and the solution was mixed thoroughly with the fresh white of egg. The salts examined were iron-alum, sesquichloride of iron, common alum, chloride of zinc and nitrate of lead. Coagulation followed immediately in every instance. In one or two cases the dilution was carried much further,—one part of the salt to three or four thousand of water. Here, too, coagulation followed in one or two seconds.

It may be remarked, in passing, that the hæmostatic action of the iron-salts is probably to be attributed in great measure to this faculty of coagulating albumen, exercised upon the serum of the blood.

The attempt to obtain similar results from the sulphites entirely failed. They appeared, indeed, to retard coagulation by other reagents. The coagulating power of sulphurous acid was faint and ill defined.

If we review the evidence now before us, we shall find that it stands thus:

We start with two assumptions,—the first justified by recent re-

search, the second borne out by analogy, viz., that infection results from the transference and development of minute germs; and that these germs contain albuminous matter as a necessary constituent, the coagulation of which terminates their existence. Upon these assumptions we frame our major premiss,—that “all coagulators of albumen are disinfectants;” and, having arrived at this result by a process of pure reasoning, we proceed to prove its truth by experiments upon the antiseptic, and so upon the disinfectant, properties of a well-known albumen-coagulator. Having thus established our fundamental proposition, we produce experimental proof of our minor premiss—that “nearly all the substances to which popular experience has assigned the property of arresting the spread of infectious diseases, where that power is at present unexplained, are coagulators of albumen.” The conclusion then necessarily follows, that these substances are disinfectants; and thus a vindication of their efficiency is furnished in those cases where it has been called in question by chemists on the ground that no sufficient explanation of their action had been offered.

The above conclusion does not apply to sulphurous acid and the sulphites. In their case, we must probably look for some more remote physiological effect upon germinal existence.

Note on the Use of Hydrochloric Acid as an Antiseptic.

It is probable that hydrochloric acid, which shares the properties attributed to nitro-hydrochloric acid in the foregoing remarks, will be found to be a valuable preservative of animal food. A piece of meat, immersed for fifteen minutes in a mixture of one part of the acid to three of water, remained entirely free from putrefactive change after nearly a fortnight, though the action of the acid was not sufficiently powerful to prevent the appearance of a small quantity of mould. The meat was then immersed in a dilute solution of carbonate of soda, and the superficially absorbed acid was thus converted into common salt. This reaction obviously gives hydrochloric acid a great advantage over other antiseptics, which introduce into the food a foreign substance, inimical by its very nature, in most cases, to the process of digestion.—*London Pharm. Journ.*, July 22, 1871, from *The British Medical Journal*.

ON THE SOLUBILITY OF BISULPHIDE OF CARBON IN ALCOHOL.

BY C. TUCHSCHMIDT AND O. FOLLENIOUS.

The solubility of bisulphide of carbon in alcohol varies considerably with the temperature. The authors found that a solution saturated at 15° C., when cooled to -12°, separates about one-half; cooled to -10°, about one-third, and when cooled to +10°, about one-fifth of the bisulphide; while at ordinary temperatures above 15° C., the variation is slight. On adding bisulphide of carbon from a burette to alcohol, a strong milkiness is produced when one drop beyond the point of saturation is added. The authors used 10 c. c. alcohol of the percentage (by weight) indicated, and found it to dissolve the following quantities of bisulphide at 17° C.:

98.5	per ct. saturated by	18.20	c. c.	21.37	per ct. saturated by	5.00	c. c.
98.15	"	"	13.20	"	"	"	3.00
96.95	"	"	10.00	"	"	"	2.00
93.54	"	"	7.00	"	"	"	0.20
				45.90	"	"	0.

Absolute alcohol dissolves the bisulphide in all proportions.

The authors give a formula for calculating the strength of alcohol from the solubility of bisulphide of carbon in it.—*Berichte d. d. Chem. Gesellsch. Berlin*, 1871, No. 11, 583—585.

ON THE INFLUENCE OF COFFEE AND CACAO ON ALIMENTATION.

BY M. RABUTEAU.

Two dogs were taken, as nearly as possible identical in size and condition, and one of these was fed every day with 20 grammes of bread, 10 grammes of fresh butter, and 10 grammes of sugar; the other with 20 grammes of cacao, 10 grammes of sugar, and an infusion of 20 grammes of roasted coffee. This last ration it is observed contained less solid matter, by weight, than the preceding. The first dog grew very thin in a short time, and died in twenty-nine days, showing all the symptoms of an insufficient nourishment. The other continued healthy, though he grew thin, but not so much so as the first dog. The experimenter having been called away to duty at the fortifications just after the first dog died, he was unable to feed the second

as he had purposed, and the animal, not receiving any nourishment, died at the end of four days. Remarks are made on the roasting of coffee. It should be so accomplished, that it shall contain all the caffeine, the true active principle of the berry, and should not contain caffeine, an essential oil developed in roasting. This latter principle the author asserts is the one which excites and causes the injurious effects so often found to arise from the use of coffee. Its formation may be to a considerable extent prevented by roasting the coffee in a current of heated air.

A discussion on the subject followed, in which it was questioned whether coffee and cacao were to be considered as aliments, M. Chevreul expressing his belief that personal idiosyncracies had much to do with it. He also remarks on the difficulty of settling the question, for want of a standard by which to be guided, as, for instance, the percentage of nitrogen, which, however, is fallacious.—*American Chemist*, July, 1871, from *Comptes Rendus*.

USE OF OSSEINE IN ALIMENTATION.

By M. E. FREMY.

The author discusses the question, whether osseine is a nutritive substance, which he considers has been decided affirmatively. He then describes the preparation—the chemicals which are to be applied with the greatest advantage; the cooking and the flavoring of the substance. He concludes by saying, 1st, that bones furnish nutriment under two forms—gelatine and osseine. 2d, the osseine should be prepared from bones well cleansed and freed from grease. 3d, in cooking, osseine changes to gelatine under the prolonged action of boiling water, in the same manner as the fibrous tissue of meat. 4th, gelatine is at present undeservedly in disfavor on account of the prejudices of the commission who have recently been appointed to examine into its claims to being a nutritious article. A discussion on the subject follows, in which it is stated that the commission on gelatine had decided that it was a modified form of animal product, and in so far as modified, was non-nutritious.—*American Chemist*, July, 1871, from *Comptes Rendus*.

Varieties.

A New Experiment.—The action of dilute sulphuric acid on starch is very neatly illustrated in a new experiment suggested by A. Vogel. It is well known that writing paper is so largely sized with starch that an iodine solution applied upon its surface will produce a blue color. Vogel traces first upon the paper some writing or figures with dilute sulphuric acid. The paper is then gently heated, but not sufficiently to char it. If now the iodine solution is applied, portions of the paper treated with the acid remain white, while the rest is blued. The same paper will serve repeatedly for the experiment, for the blue color gradually disappears.—*Journ. Frankl. Inst., August, 1871.*

Decoration of Metals.—Dr. Puscher recommends a solution composed of a mixture of 3 parts of hyposulphite of soda and 1 of acetate of lead, for the purpose of decorating metallic surfaces. When heated to about 100° C., this solution deposits a layer of sulphide of lead upon any metallic surface in contact with it—the effect of the peculiar color of the metal beneath being to produce a great variety of tint.—*Journ. Frankl. Inst., August, 1871.*

Gun-Cotton is now manufactured in England to an amount exceeding 100 tons per annum. The cotton fibre is reduced to a pulp, as in paper making, in which condition the excess of acids is readily removed. The pulp is compressed into disks, under a pressure of 18 tons to the inch, and then dried. These disks are $\frac{7}{8}$ inch to 7 inches in diameter, and $\frac{1}{2}$ inch to 2 inches thick. In the open air this compressed cotton burns intensely, but without explosion; but when properly exploded under close confinement, its strength is from 2 to 5 times that of the same weight of gunpowder. If accidentally wetted, this form of gun-cotton can be re-dried by exposure to the sun, or even by a gentle heat, without risk of explosion or deterioration.—*Journ. Frankl. Inst., August, 1871.*

Origin of Hail.—Prof. Reinsch* announces that it is impossible, in the present state of our knowledge, to proclaim a theory which shall satisfactorily explain the origin of this meteorological phenomenon.

Though it may be safely asserted that the conditions originating it are different from those producing the deposition of rain or snow, or that these conditions are more intense in character, yet a microscopic examination of hail proves that the conditions originating it are by no means always the same; for the structure of the product is rarely the same. He mentions the curious fact that in some hail which he examined beneath the microscope, there was found at the centre of the stones a spherical globule, which proved to be air. When these globules were nearly freed by the melting of their icy confinements, they burst the last portions of the shell with energy, and, expanding, occupied in a bubble form a space more than fifty times greater than when confined; showing that they had been subject to a pressure equivalent to more than fifty atmospheres.

* Pegg. Ann., CCXVIII, 623.

Cold may possibly have had some part in this diminution of volume; but the temperature necessary to produce so great a reduction in volume must have reached— 214° C. at the point where the hail was formed—if cold had been the only cause in play. Whatever explanation we assign to this interesting observation, it must certainly be regarded as the most unexpected one which has yet appeared in the study of this puzzling phenomenon. Prof. R. recommends the diligent use of the microscope as the only means of solving the problem of the history of hail.—*Journ. Frankl. Inst., August, 1871.*

“*Waterproof Glue.*—Ordinary glue can be rendered insoluble in water by adding to the water, with which it is mixed when required for use, a small quantity of bichromate of potash, and exposing the articles to which it is applied to the light. Chromic acid has the property of rendering glue and gelatin insoluble, and, as the operation of heating the glue-pot is usually conducted in the light, no special exposure of the articles to which it is attached need be made. It is probable that paper could be rendered impervious to water by pasting the sheets with this prepared glue. The bichromate is said to render rubber particularly hard and unattackable by hot water. The chromated gelatin ought also to be tried on parchment paper, wood, leather, and cloth fabrics. The proportion of bichromate to be taken must be ascertained by experiment; for most purposes one-fiftieth of the amount of glue employed will be found to suffice,—that is, one pound of dry bichromate of potash to fifty pounds of dry glue.

“Many applications of waterproof glue will readily suggest themselves to our readers. The Albert photographic process is founded upon this property of gelatin, and billiards-balls, buttons, and ornaments are now largely made of chromated glue.”—*Dental Cosmos, August, 1871, from Sci. Amer.*

Liquid Glues.—F. L. J., of Ark., states (*Ibid.*) that “an excellent liquid glue can be made by dissolving glue in nitric ether. The ether will only dissolve a certain amount of the glue; consequently there need be no fears of making the solution too thick. The glue thus made is about the consistency of molasses, and is doubly as tenacious as that made with hot water. If a few bits of india-rubber, cut into scraps the size of a buckshot, be added, and the solution allowed to stand a few days, being stirred frequently, it will be all the better, and will resist dampness twice as well as glue made with water. The best liquid glue that I have any knowledge of is made as follows: take of gum shellac, three parts; caoutchouc (india-rubber), one part, by weight. Dissolve the caoutchouc and shellac, in separate vessels, in ether free from alcohol, applying a gentle heat. When thoroughly dissolved, mix the two solutions, and keep in a bottle tightly stoppered. This glue is called marine glue, and resists the action of water, both hot and cold, and most of the acids and alkalies. Pieces of wood, leather, or other substances, joined together by it, will part at any other point than at the joint thus made. If the glue be thinned by the admixture of ether, and applied as a varnish to leather along the seams where it is sewed together, it renders the joint or seam water-tight, and almost impossi-

ble to separate. The natives of the Maldives and Laccadive Islands, and the Malays of the coasts of Borneo and Sumatra, have a glue which they make as follows: they take the scales of a kind of fish, called by English and American sailors salt-water trout (identical with the salt-water trout of the Gulf of Mexico), and, after thoroughly washing them, place them in a glazed earthen jar, which they stopper tightly, and weight so that it will remain under water. They put this jar in a pot of water, and boil it until the scales are reduced to a semi-transparent viscous mass. This requires several hours' boiling. Care should be taken that no water or extraneous matter, fluid or solid, be allowed to get into the jar with the scales. The glue thus made is the most tenacious, and, at the same time, the most transparent and beautiful that I have ever seen. I have made it in this country from the scales of perch, trout, and bass. I am informed that a similar glue is made from the bladders of various fishes."—*Dental Cosmos*, August, 1871.

On the Diseases of the Silk-worm.—Justus v. Liebig.—v. Liebig sees the cause of the silk-worm disease in the want of care given to the raising of the Mulberry tree, the soil in the old plantations being exhausted, cannot give the necessary nitrogen, and probably inorganic substances for the nourishment of the leaves, and these again fail to be a satisfactory food for the silk-worm. He criticises the French method, of separating the diseased eggs of the silk-worm from the healthy ones by means of the microscope, and is confident that this disease will soon disappear, if proper care is given to the raising of a healthy food.—*Amer. Chemist*, July, 1871.

How to Cure Stammering.—Since our profession do so little, practically, to relieve this trying infirmity, they must not take it amiss to receive a lesson from a layman who seems to have successfully grappled with and conquered the difficulty in his case. Practical facts are what we want, from whatever source they come.

Lute A. Taylor, editor of the La Crosse (Wis.) *Leader*, who has been an inveterate stammerer, writes as follows about the way to cure the habit: "No stammering person ever found any difficulty in singing. The reason of this is that by observing the measure of the music—by keeping time—the organs of speech are kept in such position that enunciation is easy. Apply the same rule to reading or speech, and the same result will follow. Let the stammerer take a sentence, say this one, 'Leander swam the Hellespont,' and pronounce it by syllables, scan it, keeping time with his finger, if necessary, letting each syllable occupy the same time, thus, Le—an—der—swam—the—Hel—les—pont, and he will not stammer. Let him pronounce slowly at first, then faster, but still keeping time with words instead of syllables, and he will be surprised to find that, by very little practice, he will read without stammering, and nearly as rapidly as persons ordinarily talk or read. Then practice this in reading and conversation until the habit is broken up. Perseverance and attention are all that is necessary to perform a perfect cure.—*Med. and Surg. Rep.*, July, 1871.

Pharmaceutical Colleges and Associations.

The Massachusetts College of Pharmacy has elected the following named foreign pharmacists, honorary members of that College: Prof. Th. Redwood, Ph. D., Prof. John Attfield, Ph. D., Daniel Hanbury and Henry Deane, of London; Henry B. Brady, Newcastle-on-Tyne; Dr. H. Hager, Berlin; Prof. Dr. F. Mohr, Bonn; Dr. G. C. Wittstein, Mnich; Prof. Dr. F. A. Flückiger, Bern; Prof. Dr. G. Dragendorff, Dorpat. In addition to the above, the following American pharmacists were honored with the same distinction: J. Faris Moore, Wm. Procter, Jr., I. J. Graham, J. M. Maisch and E. R. Squibb.

The *New Jersey Pharmaceutical Association*, at a meeting held at Long Branch, August 16th, passed the following resolutions, which were offered by Mr. James Stratton, of Bordentown:

Whereas, by an act of Congress, approved July 14th, 1870, the provisions of a former act were repealed, allowing the Apothecary or retail Druggist to sell Alcohol and Spirits for medicinal purposes, under a license of Ten Dollars; and, whereas by such repeal, a retail Druggist or Apothecary is now compelled, by act of July 30th, 1868, to take out a Retail Liquor Dealer's license the same as a Hotel, paying for it the sum of Twenty-Five Dollars, the same as an ordinary vender of ardent spirits for drinking purposes; therefore

1. *Be it Resolved*, By the New Jersey Pharmaceutical Association now assembled, that we deem the tax of \$25.00, by the Internal Revenue Act, as oppressive and unjust upon a branch of the medical profession, who are obliged to dispense ardent spirits in various ways for medicinal purposes as well as for use in the arts; who have no desire or intention of selling it for drinking purposes or to make money out of its sale in that way.

2. *Resolved*, That we consider ourselves as well entitled to exemption from license tax as the Physician, the Dentist or the Lawyer, especially as we are reached by stamp tax on so many proprietary articles; but should it be demanded that we pay a license on account of the small amount of spirits we are obliged to dispense or use in our legitimate business, then we claim, as a simple act of justice, that the tax be \$10.00 for an Apothecary's License to sell Alcohol and Spirits for medicinal purposes, which sum will be ample compensation for the benefits it confers.

3. *Resolved*, That a copy of these Resolutions, signed by the officers of this Association, be furnished to each of our Senators and Representatives in Congress, and that they be urged to secure the repeal of that portion of the Revenue Act bearing upon us, or at any rate that the tax be reduced to the amount named in the original law.

Maryland College of Pharmacy. In our notice of the annual meeting of this College, published in the July number of the Journal, we overlooked the following resolution, which is another evidence of the enlargement of the field of pharmaceutical education in this country:

Whereas, This College has long desired to establish a Chair of Botany in its School, in which it has been hindered because of no natural advantage to demonstrate the Science, and *whereas*, a Pharmaceutical education is incomplete without a theoretical and practical knowledge of Systematic Botany, therefore, *Resolved*, That the Maryland College of Pharmacy most respectfully petition the Mayor and City Council of Baltimore to appropriate a suitable

space of ground in one of the Public Parks, in which they establish a Botanical Garden, and that admission be granted to Botanical Classes for the study of Botany.

At the same meeting Mr. Joseph Roberts urged, besides the establishment of a chair on botany, also one on practical analysis.

The following delegates to the next meeting of the American Pharmaceutical Association were appointed: Dr. J. Faris Moore, Dr. J. H. Hancock, Dr. Louis Dohme, John A. Webb and J. Newport Potts.

The *Kansas College of Pharmacy* has appointed the following delegates to the next meeting of the American Pharmaceutical Association: Geo. Leis, of Lawrence; E. T. Porter, of Junction; J. W. Price, of Paola; R. Parham and Jos. Harrop, of Leavenworth.

The *Mississippi State Pharmaceutical Association*, we are informed, will be represented at the forthcoming meeting of the National Association. The organization of this body appears to have awakened a lively interest in pharmaceutical affairs in that State.

British Pharmaceutical Conference. The Annual Meeting of this body was held at Edinburgh, on the 1st, 2d and 3d days of August. After the delivery of the address by the President, Mr. W. W. Stoddart, and after the usual votes of thanks had been proposed and passed, the further business of the meeting was commenced by Professor Wright, of St. Mary's Hospital, reading a paper on Some Oxidation Products of Essential Oil of Orange Peel, and then giving an interesting account of the results obtained in his experiments on codeia. This investigation, connected with a material of great importance in pharmacy, has well served to illustrate how much the chemist's capacity of detecting differences has been developed in advance of his power of giving verbal expression to the differences he has made out to exist between substances. In a report on the chloral of trade, Mr. Mason expressed himself satisfied with the quality of this medicine, and Mr. Pattison Muir sent a paper on the same subject. The remaining papers read on Tuesday were "Pharmaceutical Notes on *Rhamnus Frangula*, Linn.," Mr. H. C. Baildon; "The Compound Iron Mixture of the British Pharmacopœia," Mr. C. A. Staples; "Report on the Purity of the Permanganate of Potassium of Pharmacy," Professor Allen, F.C.S. "On the Use of Blistering Flies in Hydrophobia," Henry Groves, Florence; "Solutions," T. B. Groves, F.C.S. Some account was also given of a new method of dealing with meat for the purpose of preservation, and Mr. Baildon described a new wire-guard for the protection of persons engaged in bottling aerated waters.

On Tuesday evening the *Conversazione* was held in the rooms of the Museum of Science and Art, at which about fourteen hundred ladies and gentlemen were present. Among the visitors was his Majesty, the Emperor of Brazil, who arrived about eleven o'clock. A selection of band and pipe music was performed by the band of the 93d Sutherland Highlanders, and during the evening photographic views of Scottish scenery and buildings were exhibited by the aid of the oxy-hydrogen light.

On Wednesday, the first two papers read were on "The Crystalline Principles in Aloes," one by Prof. Flückiger, the other by Messrs. T. and H. Smith. These papers gave rise to a lively and prolonged discussion. After these, papers were read by Mr. Greenish on "Linseed and Linseed Meal," and by Mr. Staples on "The Tincture Press." Another paper, by Professor Flückiger, was on "Wild Rue, *Semen harmalæ*," and a second paper by Mr. Staples was on "A Mode of obtaining Distilled Water."

Dr. Edwards then made some verbal remarks on cheap microscopes and apparatus. Following this, Mr. Atkins read a paper on "Pharmaceutical Ethics," which called forth remarks from the President, Mr. Schacht, Mr. Mackey, Mr. Deane, Dr. Edwards and other members of the Conference; others also desired to speak, but the time of closing the meeting having passed, it became necessary to take as read the papers on the "Preparation of Liquor Bismuthi," by Mr. C. H. Wood, and on "Pharmacopœial Nomenclature," by Mr. C. R. C. Tichborne, and proceed to the remaining business.

Unanimous votes of thanks were passed to the readers of papers and to the Edinburgh pharmacists for the efforts in organizing for the Meeting and for the hospitality shown and already in store for visitors to the Conference,—especially connecting with this vote the names of Mr. Mackay and Mr. Baildon.

The Meeting then proceeded to the election of officers. A letter from Mr. Reynolds, resigning the post of Secretary, was read, and called forth a lively expression of regret, which Professor Attfield was requested to express to Mr. Reynolds.

The following were then chosen office-bearers for the ensuing year:—

President—Mr. H. B. Brady.

Vice-Presidents—Messrs. H. Deane, D. Hanbury, W. W. Stoddart, R. Bentley, J. Ince, J. Williams, R. Reynolds and Savage.

Mr. F. B. Bengier was elected General Secretary in place of Mr. Reynolds, and Mr. T. Glaisyer Local Secretary at Brighton.

The proceedings of this year's Meeting were brought to a close on Thursday evening by the usual Dinner, which was provided at the Royal Hotel. About eighty or ninety members dined together, the Executive Committee being the guests of the resident members.

The California Pharmaceutical Society, at its meeting held last month, elected the following gentlemen honorary members: Chas. A. Tufts, Dover, N. H.; Prof. Dr. E. R. Squibb, Brooklyn, N. Y.; Professor Edward Parrish, Philadelphia; Samuel M. Colcord and T. W. Metcalf, Boston.

The Executive Committee reported adversely to instituting a course of lectures, for the present, but requested the sense of the meeting upon various topics, such as a registry bill, training of apprentices, etc.

The meeting, after adopting the report of the Committee, referred various questions to them, with power to act.

The matter of closing stores on Sunday was postponed till the next meeting.

The Secretary presented correspondence, among which were printed copies of various "drug bills," as passed by the Legislatures of different States. The correspondence was ordered placed on file for future reference.

Much discussion ensued upon the subject of examination and registration of apothecaries, and the meeting resolved that any bill to be considered in the Legislature should be drawn and presented by a joint Committee of the California Medical Society and the California Pharmaceutical Society. The Chairman of the Examining Committee stated also, that the Committee were convinced of the necessity of asking an appropriation from the next State Legislature wherewith to establish a College of Pharmacy for San Francisco.

Mr. Parks presented a sample of California opium assaying over nine per cent. of morphia; and Mr. Steele exhibited various samples of elixirs, syrups, etc., made from formulas of the Newark Pharmaceutical Association, and published in the *American Journal of Pharmacy* and the *Chicago Pharmacist*.

The Chairman called the attention of the meeting to the next annual meeting of the American Pharmaceutical Association, to be held at St. Louis in September next.

It was resolved that the Executive Committee be instructed to appoint three members of the Society as delegates to the National Convention, and that the Secretary furnish them with the necessary credentials.

The German Apothecaries Society, Branch South Germany, will hold their annual meeting at Worms, September 7th and 8th.

Editorial Department.

REDUCTION OF FARE FOR THE ATTENDANTS AT THE NEXT MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.—The Permanent Secretary has effected an arrangement with the Pennsylvania Central Railroad, to carry members and delegates and their families to St. Louis and back at the following rates: From Harrisburg, \$25; from Baltimore, \$26; from Philadelphia, \$27; from New York, \$30; and from Boston, \$33, which is a reduction to nearly one-half the regular through fares. West of Pittsburg, members will have the choice of the following three routes to St. Louis, namely, via Columbus and Indianapolis, via Columbus and Cincinnati, and via Crestline and Indianapolis.

Tickets will be sold at the offices of the Pa. C. R. R. in the above cities only upon an order to be obtained from the Permanent Secretary, and *upon each order only one ticket will be sold*. The tickets will be good Westward from the 5th to the 12th of September, and the return tickets until September 25th.

Applications for orders, to receive attention, must reach the Permanent Secretary before Sept. 5th.

SITUATIONS FOR STUDENTS.—Mr. Wm. C. Bakes, who keeps for the Philadelphia College of Pharmacy a register of vacancies and of applicants for situations, informs us that a large number of young men have already registered their names, anxious to attend the lectures and to obtain employment during the unoccupied time. We call the attention of all pharmacists in the city and suburbs, who may be in need of help, to this announcement.

ACCIDENTS AT DR. SQUIBB'S LABORATORY.—Our readers will learn with deep regret of two serious accidents, the particulars of which are given in the following letter from Professor Procter :

PROF. JOHN M. MAISCH, *Editor of the American Journal of Pharmacy :*

It may be interesting to the readers of the Journal to know something of the details of the accidents which recently occurred in the laboratory of our friend, Dr. E. R. Squibb, of Brooklyn, one of which caused the death of one of his workmen, and the other a serious loss, by fire, two days after. On Thursday, Aug. 10th, one of his workmen, in changing a receiving flask into which carbolic acid was being distilled, broke the flask and scalded himself, not very badly, with the hot phenol. This was bad enough ; but he managed to inspire the vapor in considerable quantity, with the result that in half an hour he was dead—despite all efforts to save him—probably from the profound anæsthetic effect of the vapor. He was a German, and leaves a wife and three small children.

On Saturday morning following this accident, whilst Dr. Squibb was at the Coroner's office, one of four 8-gallon flasks of carbolic acid broke over the fire, and let its contents into the iron sand-bath in which it was supported. This caused very rapid boiling, and large quantities of inflammable vapor were set free. Under the influence of the previous accident the men had not their usual presence of mind, and, in some unexplained way, managed to get this large column of vapor on fire. Subsequently, in applying water to this, the other flasks must have been broken, and thus increased the flame. Several important workmen were absent on vacations, and those who were present could not operate the special fire apparatus effectively. For this reason the flames soon reached the beams and rafters above, and were beyond their control. The fire department, however, soon got the fire under, before the roof was destroyed, but not until the timbers were seriously damaged. The space above, though not floored, was furnished with several platforms, on which valuable glass and other apparatus was stowed, and here the greatest loss was occasioned. The floor of the laboratory is supported on wrought iron joists, with intervening brick arches, and is paved throughout with flagstones in cement, with perfect drainage. The consequence was that not a pailful of water passed to, or a dollar's worth of damage was suffered by the stock, apparatus, etc., on the lower floors. About \$800 worth of chloral, and \$1500 worth of other material in process of manufacture were destroyed, and between two and three thousand dollars' worth of apparatus. The Fire Marshal roughly estimates the loss on the building at \$2500, all covered by insurance, and the interruption to business will not be serious ; but the loss of life is a source of great trouble to Dr. Squibb, who, with his son, had been the relief of this man at the carbolic acid retorts, and had both repeatedly changed the same flask that broke in his hand. The difficulty arose from the deceased having allowed the flask to get filled nearly up to its mouth before removal.

The assistant, who was not seriously injured, testified before the Coroner's Jury that they both jumped back instantly, letting go both flask and pitcher, and that he neither saw nor felt any vapor. For ten minutes after the accident no danger was apprehended by the deceased ; the first signs being a feeling of intoxication and staggering, from which he was steadily prostrated down to death in half an hour. He had been engaged in chemical laboratories over eight years, and in his last place seven months, and knew the nature of his employment.

STAMP DUTIES ON PERFUMERY.—The Internal Revenue Officers have heretofore interpreted the law so that imported perfumery in packages (of half or one dozen bottles) as originally put up by the manufacturers, could be sold un-

stamped. Recently, however, the Commissioner of Internal Revenue has decided that imported perfumery may be sold in the original or unbroken package, as entered at the Custom House, without being stamped, but when this original package is broken, and the smaller packages are taken therefrom, the bottles contained in the smaller packages must be stamped before they are sold or offered for sale. According to this decision the stamping will have to be done—as a rule—by the importer, and retailers are, henceforth, precluded from purchasing perfumery in the manufacturers' original packages, because they must be broken by the purchaser of the imported cases for the purpose of stamping each bottle.

We regard this decision as utterly erroneous, and not in accordance with the spirit of the Internal Revenue law. Only such packages of perfumery can be regarded as *original* packages, which conform to the style in which the manufacturer packs his goods for the convenience of the dealers. Such original manufacturers' packages may be and frequently are imported together with drugs and other goods in the same cases, and such cases cannot therefore be regarded as original packages of perfumery.

A few months ago, Internal Revenue Assessors and Detectives visited a number of pharmacies in Philadelphia, and induced the proprietors to stamp their shop bottles from which perfumery and toilet articles are retailed, equivalent to the stamp duty of the retail value of their contents. We now find in the newspapers the following decision of the Commissioner of Internal Revenue: "In regard to stamping a barrel or gallon bottle of Cologne water to retail from, the Commissioner says the law does not authorize such a practice. The law requires the stamp to be affixed to the bottle or other enclosure in which the article is sold and delivered, even though the bottle or enclosure may be furnished by the purchaser."

The law requires perfumery to be stamped in proportion to the full retail value of the vessel and its contents. We have heard of some wise officers who require the same value of stamps, even if the bottle or vessel be furnished by the purchaser; that is to say, supposing the purchaser to bring a fancy bottle, worth at retail three dollars, and to buy five cents' worth of Cologne water, they would have the seller stamp the bottle 14 cents, or, in other words, pay to the Government 14 cents for the privilege of selling 5 cents' worth of perfumery.

The ridiculousness of such a demand is so obvious that nothing further need be said about it; but the above cases show how vexatious the law may be to the honest dealer, and how little the officers themselves agree in their interpretation of it.

IMPORTATION OF POWDERED DRUGS.—A few years ago a lot of rhubarb root was rejected at the New York Custom House as unfit for medicinal use. It appears that it was reshipped to Europe, powdered, and again sent to this country. It is well known how difficult it is to examine most powdered drugs and establish their purity by chemical assay or by the microscope, and it is a remarkable fact that powdered drugs which can be easily tested, particularly those containing alkaloids, are rarely if ever imported, while those the nature

of which offers opportunities for sophistication or deception, are frequently sent here, often done up in packages without any clue as to the maker's name, and consigned to parties not in the drug business. Such circumstances in themselves create suspicion, and if it is remembered that in this country we have ample facilities for powdering drugs, equal to those of European countries, it must certainly be conceded that there exists no necessity for importing drugs in a pulverized condition.

An attempt recently made to import a quantity of powdered drugs, evidently sophisticated, offered a good opportunity to bring this important subject to the notice of the Treasury, the movement being aided by a number of prominent importers, druggists, pharmacists and physicians. It is to be hoped that the Treasury regulations will be so altered as to exclude all powdered drugs, unless they be of such a nature that their quality can be easily determined.

OPPOSITION TO THE NEW YORK EXAMINING LAW.—In a former issue we have freely criticised this law, and stated our objections to it. Up to the present time we have seen no reason to alter our opinion, which, on the contrary, has been confirmed by all the new developments, not the least of which is the table of examining fees, showing that the main object of the law is not solely the public welfare; in fact, it has been openly charged that the bill was passed for the purpose of procuring comfortable berths to a select few. If the father of the law, Mr. Irving, is really the politician and prize-fighter which he is depicted to be in the newspapers, his opposition to the bill offered by the New York College of Pharmacy is readily explained.

With the unreasonable features of the law, and the extravagant charges under its cover, it could not be otherwise; but regarded as a new chapter in black mail, and the opposition to it amongst the New York pharmacists is easily explained. This opposition grew to such an intensity that the Commissioners found it necessary to defend their action in the public press; but their effort does not appear to have convinced any one of the justness of such a law, the propriety of appointing a pharmaceutical board in such a manner, their right of disregarding all collegiate evidences of proficiency, or of the propriety to extort such fees.

Undoubtedly there are some arraigned in opposition to this law mainly in consequence of the fear that on examination they might be found wanting, but the best pharmacists of New York are endeavoring to contest it. They have formed an *Apothecaries' Union*, into which educated pharmacists only are admitted, and whose ultimate object appears to be to displace the present objectionable law by one containing the main features of the one which is in successful operation in Baltimore, coupled, perhaps, with some provisions of the Rhode Island law. They have our best wishes for their ultimate and complete success.

THE KEEPING AND DISPENSING OF POISONS IN GREAT BRITAIN.—For some months past, our pharmaceutical brethren in Great Britain have been agitated on the above subject. The council of the Pharmaceutical Society had under consideration certain regulations, which, under the Pharmacy Act of 1868,

after having obtained the approval of the Society, were to become binding upon all registered pharmacists, chemists, and druggists in Great Britain. A violent opposition arose, based mainly upon the fact that dispensing surgeons were not included and could not, under the existing laws, be compelled to conform to these regulations; the interference with individual rights and the greater safety of the public under properly educated pharmacists, were likewise among the arguments brought forward in opposition to the proposed measure. The pressure of this opposition was so strong that the council reconsidered its action, and instead of proposing the regulation as *compulsory*, made them merely *recommendatory*, and in this form they were subsequently adopted by the Pharmaceutical Society at the anniversary meeting held May 17th. In the meantime the president, Mr. Sanford, had resigned his position, because he considered the Society bound, by the Act of 1868, to propose compulsory regulations. The following are the recommendations by the Pharmaceutical Society of Great Britain for the keeping, dispensing and selling of poisons:

1. That in the keeping of poisons each bottle, vessel, box, or package containing a poison be labelled with the name of the article, and also with some distinctive mark indicating that it contains poison.

2. Also that in the keeping of poisons, each poison be kept on one or other of the following systems, viz.

(a) In a bottle or vessel tied over, capped, locked, or otherwise secured in a manner different from that in which bottles or vessels containing ordinary articles are secured in the same warehouse, shop, or dispensary; or

(b) In a bottle or vessel rendered distinguishable by touch from the bottles or vessels in which ordinary articles are kept in the same warehouse, shop, or dispensary; or

(c) In a bottle, vessel, box, or package kept in a room or cupboard set apart for dangerous articles.

3. That in the dispensing and selling of poisons all liniments, embrocations, and lotions containing poison be sent out in bottles rendered distinguishable by touch from ordinary medicine bottles, and that there also be affixed to each such bottle (in addition to the name of the article, and to any particular instructions for its use) a label giving notice that the contents of the bottle are not to be taken internally.

After the action of the Pharmaceutical Society in this matter had taken place, a bill was introduced into Parliament, entitled: An Act to amend the pharmacy act, 1868, in which all power to frame such regulations, is taken from the Society and placed into the hands of the council of the Society, and ultimately of the Privy Council. The section, as amended, is as follows:

2. The recited powers of the Pharmaceutical Society of Great Britain under the principal Act shall cease, and the Council of the said Society may from time to time submit to the Privy Council regulations as to the keeping, dispensing and selling of poisons within the meaning of the principal Act, and as to revoking or amending any such regulations previously made, and the Privy Council may, if they think fit, by order approve of such regulations.

If at any time it appear to the Privy Council that there are no regulations for the time being in force under the principal Act as to the keeping, dispensing and selling of poisons within the meaning of the principal Act, the Privy Council may serve a notice on the Council of the Pharmaceutical Society requiring them to frame and submit for the approval of the Privy Council regulations as to the matters aforesaid, and if the Council of the Pharmaceutical

Society, within the time limited by such notice, not being less than two months from the date of the service of the notice, make default in framing such regulations, or obtaining the approval of the Privy Council thereto, the Privy Council may themselves frame regulations as to the matters aforesaid.

All regulations approved or framed by the Privy Council in pursuance of this section shall have the same effect as regulations prescribed in manner specified in the principal Act.

NEW EXCHANGES.—Within several months we have been the recipient of a number of medical, technological and other journals with the request to place them upon our exchange list. We shall always be glad to comply with such propositions, whenever we shall find it to be to the interest of this journal and its numerous readers; or when the location of such publications may make it desirable. Our editorial friends must, however, bear in mind that our exchanges are already quite numerous, and to a considerable extent, comprise periodicals which rarely contain matter suitable for our columns. The failure on our part to exchange, will we trust, for these reasons, not be considered discourteous.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Plastics and Orthopedics. A report republished from the Transactions of the Illinois State Medical Society, for 1871. By David Prince, M.D. Jackson-ville, Ill. 8vo. 56 pp.

The report, which is embellished by 38 illustrations, may also be obtained bound in connection with two previous reports, the whole published by Lindsay & Blakiston, Philadelphia.

Proceedings of the New Jersey Pharmaceutical Association at the first annual meeting, held in Trenton, N. J., February, 1871. Jersey City. 8vo., 16 pp.

In the absence of the President, Mr. C. H. Dalrymple, on account of illness, the first Vice-President, Dr. E. P. Nichols, presided, and in his annual address gave a short sketch of the organization of this body and of the efforts made to secure the passage of a law regulating the practice of pharmacy and the sale of poisons. In February last, the law was defeated in the Legislature for the second time; the Association, however, shows a commendable spirit to succeed, notwithstanding the obstacles raised by some legislators.

A Review of Darwin's Theory of the Origin and Development of Man. By James B. Hunter, M.D. Reprinted from the Journal of Psychological Medicine, July, 1871. New York. D. Appleton & Co. 8vo., 19 pp.

A very lucid review of Darwin's celebrated work.

The Physiological Action and Therapeutic Use of Chloral. By Dr. J. B. Andrews, M.D., Assistant Physician, New York State Lunatic Asylum. Reprinted from the American Journal of Insanity, July, 1871. Utica, N. Y. Roberts, printer. 8vo., 24 pp.

A condensed review of the observations on the action of this remedial agent, by numerous physicians, including the experience with it at the lunatic asylum. A number of pulse tracings are given, and cases are cited where the chloral

has proven injurious and fatal; in all these, however, we miss an inquiry into the purity of the chloral hydrate used.

Braithwaite's Retrospect of Practical Medicine and Surgery. Part LXIII, July. Uniform American Edition. New York. W. A. Townsend, publisher. 1871. 8vo., 307 pp. Price \$2.50 a year.

The half-yearly Abstract of the Medical Sciences, being a digest of British and Continental Medicine, and of the Progress of Medicine and the Collateral Sciences. Edited by William Donnett Stone, M.D. Vol. LIII. July, 1871. Philadelphia. Henry C. Lea. 8vo., 296 pp. Price \$2.50 a year.

The above two publications contain the usual amount of information, systematically arranged for convenient reference.

Die literarischen Erscheinungen der letzten 5 Jahre 1866—70, auf dem Gebiete der Medicin und Pharmacie. Systematisch geordnet und mit einem Autoren Register versehen, von Eduard Baldamus u. Richardt Haupt. Leipzig. J. C. Hinrichs'sche Buchhandlung. 1871.

The medical and pharmaceutical literature during the last five years, 1866—1870; systematically arranged and with an index of authors. 8vo., 96 pages.

This catalogue, received from Messrs. Schæfer & Koradi, Philadelphia, enumerates all medical and pharmaceutical works and pamphlets from German publishers, arranged under 23 headings. During these five years about 150 different publications and new editions were issued by German booksellers on the subjects of Pharmacy, Pharmacology, Toxicology and Materia Medica.

OBITUARY.

ANSELME PAYEN, born at Paris on the 6th of January, 1795, was educated at the polytechnic school at Paris, and afterwards devoted himself entirely to chemistry, studying under Vauquelin, Thénard and Chevreul. He had a large laboratory at the factory of his mother at Grenelle, which had been established by his deceased father in 1793 for the manufacture of sal-ammoniac, animal charcoal, &c., the decolorizing and disinfectant properties of the latter not being known at that time. Subsequently he established a second factory at Vaugirard, and there paid much attention to the purification of soda, the conversion of starch into sugar, and the preparation of borax from the boracic acid of the lakes of Toscana. Payen published several works on chemistry, on the manufacture of beer, of beetroot sugar, &c., and numerous memoirs from his pen, the fruit of his researches, have been published in the scientific journals. At the universal exposition in 1867, he was president of classes No. 70 and 71. He took an active part in the proceedings of the academy of medicine of which he was a prominent member, and attended the meeting of that body on the 9th of May. Three days later, on the 12th, an attack of apoplexy terminated his useful life, he being then in the 77th year of his age.

CORRECTIONS.—The sentence on page 352, line 9 from the top, should read as follows: When the ferrous chloride has filtered through, add sufficient hot syrup to the filter, until the filtrate measures four and one half fluid ounces, and then test a small quantity, &c.

Also on same page, line 12 from top, read: Into a four ounce vial, instead of vials.

T H E

AMERICAN JOURNAL OF PHARMACY.

OCTOBER, 1871.

THE NINETEENTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The Association convened at Polytechnic Hall in the city of St. Louis, Mo., on the afternoon of Tuesday, September 12th, at 3 o'clock, and adjourned again on Friday, Sept. 15th, after having held six sessions.

First Session—Tuesday Afternoon.

The Permanent Secretary, Professor John M. Maisch, called the meeting to order, stating that in the absence of all the elected presiding officers the appointment of a President *pro tem.* became necessary. The President and two Vice-presidents were prevented from attendance at the meeting by business affairs, while the third Vice-president, Eug. L. Massot, died since the last meeting at Baltimore. Twenty-four members were present at the beginning of the session.

On motion of Prof. G. F. H. Markoe, of Boston, Prof. J. Faris Moore, of Baltimore, was elected President *pro tem.*

A Committee on Credentials was appointed, consisting of Messrs. Th. Kalb, of St. Louis, Dr. E. P. Nichols, of Newark, N. J., and Thos. Doliber of Boston.

A letter being read by the Secretary, signed by Mr. W. W. Stoddart, accrediting Mr. Henry B. Brady, the present President of the British Pharmaceutical Conference, as the representative of that Association at this meeting, the credentials were, on motion, accepted, and Mr. Brady invited to take a seat as a member. Having been introduced to the meeting by the President, Mr. Brady expressed the fraternal feeling and sympathy of the Pharmaceutical Conference,

which was established after the example of the American Association, and referring to its increasing roll of members and the good work done by it, returned thanks for the honor conferred upon him.

Letters were read from the American Wine Company, the Mercantile Library and the Public School Library, inviting the members to visit these institutions. They were accepted with the thanks of the Association.

The Committee on Credentials handed in their report, showing that the following local Associations and Colleges had elected delegates to represent them at this meeting, viz., Massachusetts College of Pharmacy, Alumni Association of the same, College of Pharmacy of the city of New York, Alumni Association of the same, New Jersey Pharmaceutical Association, Newark Pharmaceutical Association, Philadelphia College of Pharmacy, Alumni Association of the same, Maryland College of Pharmacy, Alumni Association of the same, Columbia Pharmaceutical Association of Washington, Louisville College of Pharmacy, St. Louis College of Pharmacy, Chicago College of Pharmacy, Kansas College of Pharmacy, Ontario College of Pharmacy and University of Michigan, School of Pharmacy. Each institution had accredited five delegates, except the two last named, which were represented by one delegate each.

Objections were raised to the admission of Professor A. B. Prescott, M.D., as a delegate of the University of Michigan, and the report of the Committee on Credentials was adopted, except so far as it related to the delegate from the University. An animated discussion arose, most speakers contending that the School of Pharmacy of this University could not be regarded as a College of Pharmacy in the meaning of the by-laws of the Association, although under the same by-laws the gentleman might become a candidate for membership. Finally the whole subject was referred to a Committee composed of one member from each delegation. Prof. G. F. H. Markoe, Messrs. Thos. Doliber, P. W. Bedford, J. W. Ballard, E. P. Nichols, Chas. H. Dalrymple, Prof. Wm. Procter, Prof. Edw. Parrish, J. F. Hancock, L. Dohme, Z. W. Cromwell, C. L. Diehl, Enno Sander, E. H. Sargent, Robt. J. Brown and Wm. Saunders were appointed on this Committee, and, on motion, the presiding officer was added thereto.

The roll being called, sixty-seven members and delegates answered to their names.

Mr. Wm. Wright, Jr., acting in place of the Chairman of the Executive Committee, reported the names of seventy-nine applicants for membership, who were duly elected, Messrs. Rice, of New York, and Webb, of Baltimore, acting as tellers.

The reports of the following Committees were read by their titles and laid upon the table for future action: Executive Committee with the report of the Permanent Secretary; Committee on the Drug Market; Committee on Papers and Queries; Committee on Unofficial Formulas; Committee on Adulterations and Sophistications; Committee on Legislation; Committee on the International Pharmaceutical Congress. The report of the Committee on the Progress of Pharmacy, it was stated, had not come to hand, but Mr. Wenzell, the Chairman, intended to have it present, and it was hoped that it would arrive before the final adjournment.

The Committee to nominate officers for the ensuing year was then appointed, each delegation nominating one from their number, as follows: Prof. G. F. H. Markoe, Chas. A. Tufts, Wm. Wright, Jr., J. W. Ballard, E. P. Nichols, M. D., Ch. H. Dalrymple, Prof. Wm. Procter, Jr., Wm. H. Raser, J. N. Potts, J. F. Hancock, Z. W. Cromwell, C. L. Diehl, M. W. Alexander, Prof. A. E. Ebert, E. T. Porter, Wm. Saunders. In addition thereto, the President appointed the following five gentlemen: M. F. Ash, Jackson, Miss.; Jos. H. Larwill, Bolivar, Tenn.; W. J. M. Gordon, Cincinnati; Jos. L. Lemberger, Lebanon, Pa.; and Cyrus Pyle, Brooklyn, N. Y.

The reports of the Executive Committee and of the Permanent Secretary were read and accepted; the former, after relating to business matters, contains obituary notices of twelve members who died within the past year; from the latter we copy the following, which explains itself:

The Secretary here desires to call your attention to the circumstances connected with an action of the Association at the 18th annual meeting, in regard to the disposition made of a paper written by Mr. George S. Dickey, then of San Francisco, Cal. In a letter dated Sept. 1st, 1870, received by me on the eve of starting for the meeting, Mr. Dickey wrote as follows:

"I wanted to be in Baltimore by this time but could not, and wishing, if I did go, to aid a little in the Proceedings, I pencilled a lot of notes on the U. S. Pharmacopœia, well aware that, even if any were of value, they were too late for their use; still some might be used in future. During the last few days I have hurriedly written these out, and do not know any better thing than send them to you to use. How much of these is original, how much recollection, I would

not dare to assume, original being about as dangerous an assumption as one can make. If you look at them you will find they are such notes and ideas as strike one in the prosecution of a retail pharmacy and minor manufactory, in contradistinction to those natural to a professional."

It will be seen that, by this letter, Mr. Dickey did not give any direct authority to the Secretary to present his *notes* to the Association, but under the pressure of business, it had been hastily construed as conferring such authority. On perusing the notes they were found to contain many valuable suggestions of practical importance, and the Secretary handed them, therefore, over to the Chairman of the Committee on papers and queries, to present them if deemed of sufficient value, which being done, the Association directed the return of the paper to its author. While it is painful to your Secretary to have been the cause of placing a member into an erroneous position before the Association, it is but just to Mr. Dickey that this statement should be placed on record.

Nine applications for membership were reported by the Executive Committee; the balloting resulted in their unanimous election.

On motion of Mr. Sargent, the President was requested to appoint a Committee on the exhibition and on specimens at this meeting. Messrs. C. L. Diehl, Louisville, Ky.; Geo. W. Kennedy, Pottsville, Pa.; and John F. Hancock, Baltimore, Md., were appointed.

The President's annual address was read by the Permanent Secretary, and, on motion, referred to the Business Committee, to report on the suggestions contained therein, after which the Association adjourned until Wednesday morning, at 9 o'clock.

Second Session—Wednesday Morning.

After the reading and approval of the minutes of the first session, the Committee on Credentials reported that they had received the credentials of the Mississippi State Pharmaceutical Association, accrediting Messrs. W. B. Creecy and M. F. Ash delegates to this meeting. The President remarked that the following seven new associations were represented here for the first time, and extended to them a cordial welcome: Alumni Association of the College of Pharmacy of the City of New York, Alumni Association of the Maryland College of Pharmacy, Columbia Pharmaceutical Association, Louisville College of Pharmacy, Kansas College of Pharmacy, Ontario College of Pharmacy and Mississippi State Pharmaceutical Association.

The Committee appointed to consider the admissibility of the delegate from the University of Michigan presented the following report, which, on motion, was accepted and adopted as read:

The Committee appointed at the session of the 12th inst., to consider the admissibility of the delegate from the School of Pharmacy of the University of Michigan, have duly considered the subject, and respectfully submit the following report :

The Committee on the Credentials of the Delegate from the University of Michigan, having considered the subject in its various relations, are united in the conclusion that the University is not, within the proper meaning of our Constitution and By-Laws, a College of Pharmacy, it being neither an organization controlled by pharmacists, nor an institution of learning which, by its rules and requirements, insures to its graduates the proper practical training to place them on a par with the graduates of the several colleges of pharmacy represented in this Association.

We therefore recommend that the credentials of the delegate from the University of Michigan be returned to him with a copy of this report.

(Signed by the Committee.)

The Treasurer's report was then read and referred to an Auditing Committee, consisting of Louis Dohme, Joel S. Orne and Robert Parham. The Proceedings for last year cost \$1175; the other expenses were \$1472.39, making a total of \$2647.39. After paying all the bills, a balance of \$1209.37 remains in the Treasury.

The report of the Nominating Committee was read and, after having been amended, recommended the election of the following officers for the ensuing year :

For President,

ENNO SANDER, St. Louis.

Vice-Presidents,

C. LEWIS DIEHL, Louisville, Ky.

GEORGE F. H. MARKOE, Boston, Mass.

MATTHEW F. ASH, Jackson, Miss.

Treasurer,

CHAS. A. TUFTS, Dover, N. H.

Permanent Secretary,

JOHN M. MAISCH, Philadelphia, Penn.

Executive Committee,

THOS. S. WIEGAND, Chairman, Philadelphia, Penn.

WM. H. CRAWFORD, St. Louis, Mo.

CHAS. L. JEFFERSON, Philadelphia, Penn.

CHAS. H. DALRYMPLE, Morristown, N. J.

JOHN M. MAISCH, *Perm. Secretary ex officio*, Philadelphia, Penn.

Committee on Progress of Pharmacy,

THOMAS E. JENKINS, Chairman . . .	Louisville, Ky.
HENRY W. SCHEFFER, . . .	St. Louis, Mo.
JOSEPH L. LEMBERGER, . . .	Lebanon, Penn.
JAMES R. MERCEIN, . . .	Jersey City, N. J.

And the *Local Secretary ex officio.*

Committee on Drug Market,

JOHN MCKESSON, JR., Chairman, . . .	New York.
C. F. G. MEYER, . . .	St. Louis, Mo.
RICHARD M. SHOEMAKER, . . .	Philadelphia, Penn.
JOHN JACOB THOMSEN, . . .	Baltimore, Md.
GEO. W. SLOANE, . . .	Indianapolis, Indiana.

Committee on Papers and Queries,

THOMAS DOLIBER, Chairman, . . .	Boston, Mass.
WM. PROCTER, JR., . . .	Philadelphia, Penn.
JAMES W. MILL, . . .	Chicago, Ill.

Business Committee,

E. H. SARGENT, Chairman, . . .	Chicago, Ill.
JAMES T. SHINN, . . .	Philadelphia, Penn.
THEODORE KALB, . . .	St. Louis, Mo.

Committee on Unofficial Formulas,

EDWARD L. MILHAU, . . .	New York.
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Committee on Adulteration and Sophistication,

EDWARD MALLINCKRODT, Chairman, . . .	St. Louis, Mo.
JOSEPH P. REMINGTON, . . .	Philadelphia, Penn.
CHAS. B. SMITH, . . .	Newark, N. J.

Signed on behalf of the Committee,

M. F. ASH, *Chairman.*

The officers were duly elected by ballot, Messrs. Richard M. Shoemaker, Philadelphia, and J. N. Potts, Baltimore, acting as Tellers, and the Chair appointed Messrs. E. H. Sargent, Chicago, and W. J. M. Gordon, Cincinnati, a Committee to conduct, on his arrival, the President elect to the chair.

Five candidates for membership were proposed through the Business Committee, and duly elected.

The index of the last ten volumes of the Proceedings, prepared by Mr. Wiegand at the request of the Association, was laid before the meeting, and, on motion, referred to a Committee of two for exami-

nation and report at a future session. Prof. Procter and Mr. Doliber were appointed this Committee.

The President elect not having arrived yet, Mr. C. L. Diehl, the first Vice-President elect, took the chair.

Mr. John McKesson, Jr., read an abstract from the report of the Committee on the Drug Market, which was referred for publication.

Mr. Enno Sander, the President elect, was now introduced to the meeting, and before taking the chair thanked the Association for the honor conferred upon him, which he accepted as a compliment for St. Louis, and which would have undoubtedly been tendered, if he had lived to this day, to our lamented friend Eugene L. Massot.

The reports of the Committees on Papers and Queries, and on Adulteration and Sophistication, were read and referred. The Auditing Committee reported the Treasurer's accounts correct and his books in a commendable condition. A report on the photographic album was read, and, on motion, the President requested to fill the vacancy on this Committee, occasioned through Mr. Jeannot having ceased to be a member. Mr. M. W. Alexander, of St. Louis, was subsequently appointed in his place.

On motion, an invitation was extended to the faculty of the St. Louis Medical College, the Missouri Medical College and the medical profession generally, to be present at the sittings. A resolution was also passed directing the appointment of a committee of three to consider and report on the place and time of the next annual meeting. Messrs. W. J. M. Gordon, Cincinnati, M. L. M. Peixotto, New York, and Chas L. Jefferson, Philadelphia, were afterwards appointed members of this committee.

The resolutions passed by the New Jersey Pharmaceutical Association in reference to the liquor dealers license, lately required of apothecaries (see page 423, also 379 Amer. Jour. Ph.), was laid before the Association. An attempt to have the entire internal revenue law, as far as it relates to the business of the pharmacist, referred to a committee was unsuccessful, the meeting referring the subject of the liquor dealer's license by pharmacists to a committee of three, by a vote of 35 against 7; the President appointed Messrs. Brown, of Kansas, Procter, of Pennsylvania, and Dalrymple, of New Jersey.

The report on unofficinal formulas having been handed in and referred, the second session was closed by an adjournment into the exhibition room, where the Committee on the Exhibition, through its

Chairman, Mr. Diehl, called the attention of the President, officers and members to the numerous preparations and apparatus exposed, dwelling particularly upon those which are of special interest, either from their novelty or from their superiority in construction, preparation or properties.

Third Session.—Wednesday Afternoon.

The Association reassembled at 4½ o'clock, and approved the minutes of the morning session. The report of the Committee on Legislation was read, the Committee reappointed and Mr. Hubert Primm, of Missouri, added thereto.

Prof. Procter read a majority report of the Committee on the Practicability of Inviting the International Pharmaceutical Congress to meet in this country in 1876. The motion to extend such an invitation was carried, by a vote of 33 against 2. It was further resolved that, in case the invitation be not accepted, the pharmacists of foreign countries generally be invited to be present at the meeting of this Association in 1876, which is to be held in the city of Philadelphia, and that a Committee, consisting of five members, be appointed, with instructions to report at a future meeting what arrangements may be necessary for that meeting. The President, at a subsequent session, appointed this Committee as follows: Prof. Ed. Parrish, Philadelphia; S. M. Colcord, Boston; E. L. Milhau, New York; Prof. J. F. Moore, Baltimore; Prof. E. S. Wayne, Cincinnati; and George Buck, Chicago.

The Secretary was instructed to publish in the Proceedings the letter received from the North German Apothecaries' Society in answer to the address sent last year.

The following scientific papers were read: On the exports of Virginia, A.D. 1610, by Daniel Hanbury; On Pepsin and Rennet, by Clemmons Parrish; On the Pulverization of Camphor, by J. C. Lowd; On Extract of Beef, by A. E. Ebert.

A vote of thanks was passed to the retiring officers, and the appointment of a permanent Committee on the Pharmacopœia directed, to be composed of one member from each incorporated pharmaceutical body represented in this Association, said member to be nominated by each delegation; vacancies to be filled and new members added in the same manner, and the Committee is to hold a meeting annually, at each meeting of the Association.

The Association adjourned until Thursday morning at 9 o'clock.

Fourth Session.—Thursday Morning.

After the reading and approval of the minutes a motion was made to refer all essays and scientific papers to the Executive Committee without reading them; it was declared out of order, conflicting with Chapt. V, Art. VII, of the By-Laws. A number of queries were continued to the members who accepted them last year, their answers not being ready.

The following papers were read and discussed: On a Liquid Preparation of Cantharides for Blistering Purposes, by Dr. E. R. Squibb; On Suppositories, by R. B. Ferguson; On Urethral Suppositories, by J. L. Lemberger.

The following distinguished gentlemen were proposed and unanimously elected honorary members of this Association: Prof. T. Redwood, Prof. John Attfield, London; Henry B. Brady, Newcastle-on-Tyne; Léon Soubeiran, Sèvres, Augustin Délonde, and A. Chevallier, Paris; Prof. A. Duflos, Breslau; Prof. H. Ludwig, Jena; Anton von Waldheim, Vienna.

The Committee to whom was referred the subject of the imposition of a liquor dealer's license upon apothecaries reported, and offered the following as their judgment:

The Committee to whom was referred the subject brought up in the resolutions passed by the New Jersey Pharmaceutical Association in relation to compelling apothecaries to take out a retail liquor dealer's license in order to sell medicinal liquors for legitimate medical use, report, that they have considered the subject and offer the following as their judgment:

1st. That apothecaries should not be taxed as liquor dealers if they confine the sale of liquors to the sick, and require a prescription or other written evidence of its need for medicinal use.

2d. That such sales should be limited in quantity to half a pint or a pint.

3d. That when apothecaries prefer to enter the business of selling liquors with a view to supplying general demand, they should undoubtedly be required to take a liquor dealers license.

4th. That in either case, we are of the opinion that the right of sale should not be construed to permit the drinking of liquors on the apothecary's premises unless for relief in emergencies of illness.

5th. That if these views are acceptable to the Association, a Committee be appointed to present them to the Commissioner of Internal Revenue.

After some discussion it was resolved, that the views expressed by the Committee are the views of the Association, and that a committee of three be appointed to present the same to the Commissioner of Internal Revenue and to other proper authorities. The Committee

was constituted as follows: Prof. J. Faris Moore, Maryland; Prof. E. R. Squibb, New York; Rob. J. Brown, Kansas; and by a resolution passed at the fifth session, increased to five, by the appointment of C. H. Dalrymple, New Jersey, and Matthew F. Ash, Mississippi.

The following papers were read and discussed: On Glycerin, by J. P. Remington; On Chloral, by E. R. Squibb, M.D.; On Various Oils Used for Adulterating Olive Oil, by H. N. Rittenhouse; On Pharmaceutical Apprenticeship, by S. M. Colcord; On Pharmaceutical Education, by Prof. A. B. Prescott.

The report of the Committee on the next Annual Meeting was read and laid upon the table for future action.

The following resolutions were severally discussed and passed:

Resolved, That the Executive Officers be authorized to appoint suitable persons to represent this Association at the International Congress, at St. Petersburg, in 1872.

Resolved, That the Executive Committee be directed to annually revise the list of societies, libraries and individuals to whom complimentary copies of the Proceedings shall be hereafter sent.

Also a resolution empowering the President, upon the recommendation of the Treasurer and Secretary, to remit the annual dues of members in adverse circumstances until proper reasons for such remission shall cease; and that no report of such action involving personal mention shall be made or published at any time.

Adjourned until 3 o'clock P.M.

Fifth Session.—Thursday Afternoon.

On motion of Mr. C. F. G. Meyer, the Secretary was directed to send the following cable dispatch to the North German Apothecaries Society, this day meeting at Dresden, Germany:

To W. Danckwortt: The American Pharmaceutical Association sends fraternal greetings to Norddeutschen Apotheker Verein.

Mr. C. L. Diehl exhibited and explained a diagram of an apparatus employed by him for a number of years in preparing ammonia.

The following preamble and resolution was passed, and Messrs. Geo. Buck, Chicago, Aug. Breunert, Kansas City, Mo., and E. L. Milhau, New York, appointed on the Committee:

The practice adopted by the United States government of imposing fines and penalties upon druggists for the unintentional omissions in stamping medicines and perfumery having become prevalent throughout the country, and a system

pursued by the aid of detectives acting in an official or semi-official character, of virtually forcing an infringement of the law, it is

Resolved, That the subject be referred to a committee of three, to report on what action will best secure a remedy for those abuses.

The following papers were read and referred: On Commercial Subcarbonate of Iron, by P. W. Bedford; On the Morphia Strength of Tincture of Opium, by L. M. Rice; On the Precautions against Mistakes in Dispensing Poisons, by Wm. C. Bakes; On Litmus Paper, by Prof. E. R. Squibb; On the Amount of Magnesia and of Citric Acid in Commercial Citrate of Magnesia, by Prof. G. F. H. Markoe; On a Permanent Solution of Citrate of Magnesia, by E. H. Sargent; On the Stability of Liquid Pharmaceutical Preparations containing Glycerin, by W. J. M. Gordon; On African Saffron, by Prof. J. M. Maisch; On Medicated Waters, by S. A. D. Sheppard; On Aromatic Sulphuric Acid, by Thos. Doliber.

The report of the Committee on the next Annual Meeting was taken up, and amendments made to substitute for Cleveland, O., the cities of Pittsburg, Pa., Richmond, Va., Portland, Me., Leavenworth, Kan., and Saratoga, N. Y., all of which were lost, when the recommendations of the Committee as to time and place were agreed to. A motion made, at the sixth session, to reconsider the above vote, was lost.

Eleven candidates were proposed for membership and duly elected.

Mr. E. Mallinckrodt declining to act as Chairman of the Committee on Adulteration and Sophistication, the subject was referred back to the Nominating Committee.

After the exhibition, by Prof. Markoe, of a portable microscope, the Association adjourned until the next morning at 8 o'clock.

Sixth Session.—Friday Morning.

The report of the Committee on the Progress of Pharmacy was laid before the meeting, and agreeably to his request, the Chairman, Mr. Wm. T. Wenzell, was granted leave to complete the report within one month.

The following papers were read: On Wild Cherry Bark, by Jos. L. Lemberger; On Pareira Brava, by Prof. E. R. Squibb; On Sulphovinic Acid, by Prof. Prescott; On the Preservation of Herbs, by Jos. Harrop.

Through the Business Committee, a proposition to amend the by-laws, and to be acted on at the first session of the next annual meet-

ing, was laid before the Association. It proposes to abolish the standing Committees, and to elect annually a Committee of 15 members, to transact all necessary business of the Association, including the election of members, such action to be duly reported to the Association for approval.

Subsequently Prof. Parrish offered the following, which was agreed to:

Resolved, That the Business Committee be requested to consider the expediency of a Board of Direction, which shall meet simultaneously with the Association, and shall transact all its business, including the election of members, subject to the approval of the Association; the proposed Board of Direction to be composed of the officers of the Association, the Business Committee, the Committee on Papers and Queries, and the Executive Committee; the Committee to report at the first session of the next meeting of this Association.

The following report was read, and the recommendations contained therein unanimously agreed to:

The Committee on the "Index" further report, in view of the great amount of labor and time cheerfully *given* by Mr. Wiegand to the Association, in the preparation of the general Index, that some substantial acknowledgment be presented to that gentleman, with the sincere thanks of this Association for his disinterested labors, and that the Treasurer be authorized to pay Mr. Wiegand one hundred dollars.

Respectfully submitted,

WILLIAM PROCTER, JR.,
THOMAS DOLIBER.

The following papers were read and referred: On Fluid Extract of Senega, by H. N. Rittenhouse; on the same subject, by Prof. E. R. Squibb; on the Alcoholic Extracts of the U. S. Pharmacopœia, by Wm. Saunders; on the Purity of Commercial Tartar Emetic, by Jos. P. Remington; on Plants Useful as Insecticides, by Dr. S. S. Garrigues; on Extract of Jalap, by Dr. E. R. Squibb.

Prof. Curtman, of the Missouri Medical College, obtained the floor, and stated that a pharmaceutical still was on exhibition at this meeting, on which, in connection with a coal-oil furnace, a patent was claimed in favor of Rob. B. Mitchell, of Chicago. The Doctor said that in 1865 he had invented a new capitol for the Procter still, and had presented the still, complete, to his students in the Missouri Medical College. He had also written an explanatory article on it, which appeared, with illustrations, in the St. Louis *Medical Record*, and in *American Journal of Pharmacy* for 1869. This article was copied

verbatim in the circular recommending "Mitchell's Still." The cost of the apparatus had been but *three* dollars, while the charge of the exhibitor was *ten* dollars.

A resolution, introduced by Prof. Parrish, "to request the Executive Committee to omit from the Proceedings such portions of the phonographic report as pertain merely to current business, and hence are not of general interest nor of scientific importance," was rejected.

The Nominating Committee proposed Mr. Justin Steer, of St. Louis, as Chairman of the Committee on Adulteration, and Mr. H. C. Gaylord, of Cleveland, as Local Secretary. They also recommended that, in case Mr. Gaylord should not be able to serve, the Executive Committee be empowered to make all necessary arrangements for the next meeting. Both nominees were duly elected, and the recommendation adopted.

A communication from Mr. A. Mueller, Highland, Ill., was referred to the Executive Committee; also the following papers, which were read by their titles: On Syrups by Cold Percolation, by L. Orynski; Pharmaceutical Notes, by Geo. C. Close; Artificial Mineral Waters, by A. Th. Moith; The Drug Business, its Relation to Medication and Pharmacy, by D. C. Robbins; Note on Rhubarb, and Note on Bicarbonate of Soda, by Prof. E. R. Squibb.

The delegations of the incorporated Colleges of Pharmacy appointed the following members on the Committee of the Pharmacopœia: G. F. H. Markoe, P. W. Bedford, A. B. Taylor, J. F. Moore, A. E. Ebert, and M. W. Alexander.

Five gentlemen were proposed for membership, and elected.

Resolutions of thanks were passed to the Public School Board of St. Louis for the use of the hall, to the resident members and the pharmacists and druggists of St. Louis for their hospitality, to the Local Secretary and the various local Committees, and to the Press of St. Louis, Mo.

The Committee on Specimens obtained leave to finish their report within one month, and were empowered to furnish correct copies of the report to journals for publication in advance of the publication of the Proceedings.

After the reading and approval of the minutes the Association adjourned, to meet again in the city of Cleveland, Ohio, on the first Tuesday of September, 1872, at 3 o'clock P. M.

NOTES ON CHLORAL.

BY ROB. F. FAIRTHORNE.

Hydrate of chloral having become so popular as a remedy lately, I thought that a description of its physical characteristics and its behavior when brought in contact with other substances might prove interesting.

As found in the shops of Philadelphia it appears in three different conditions. That of German manufacture in compressed, flattened masses of various sizes, which have (when freshly broken) a shining fracture, the facets of the crystals of which they are composed, glistening, and giving to them considerable resemblance to pieces of spermaceti. Another form it is found in, is in tabular crystals having a rhomboidal construction. The American hydrate, however, appears generally to consist of loose acicular crystals, which, when recently prepared, are almost transparent, but which after a while sometimes become opaque; their solubility in water being much reduced after this alteration has occurred. May not this be due to the same cause that produces a change in anhydrous chloral, which is occasionally converted into a hard opaque insoluble substance? Its odor is at the same time altered to some extent, becoming more pungent and irritating to the nostrils. I think that probably the hydrate or its vapor becomes partially dehydrated. It may possibly be produced by the action of light, as the vapor of alcohol, if exposed to sunlight in the presence of chloral, explodes. Chloroform is also affected by long exposure to light and air, chlorine and hydrochloric acid being developed.

When a little of this substance is placed on the glass slide of a microscope and melted by the application of heat, upon cooling it will be found that crystals have been formed. These, when magnified, present a very beautiful appearance, and will be observed to have assumed two distinct forms; one portion appearing as rhomboidal plates and the other (by far the greater part) as transparent acicular crystals, arranged in tufts of radiating prisms, the terminations of which are divided into feathery lines.

Anhydrous chloral has nearly the same specific gravity as chloroform, being 1.500, that of chloroform 1.495. It has a strong affinity for water, with which it combines, forming the crystalline substance just described. It unites also with alcohol a compound resulting that resembles the hydrate in appearance.

Chloral is formed by passing dry chlorine through alcohol, until fumes of muriatic acid are no longer given off, and the spirit has assumed a yellow color. This liquid is heated until it boils. It is then mixed with three times its bulk of sulphuric acid and finally redistilled over quick-lime.

Its formation seems to depend upon the affinity that chlorine has for hydrogen, the former gas taking it from alcohol and being disengaged during the process as hydrochloric acid. Alcohol is composed of $C_4H_6O_2$; by abstraction of two equivalents of hydrogen (which takes place at the beginning of the process) it becomes aldehyde $C_4H_4O_2$. As the chlorine continues to pass it takes with it three more equivalents of hydrogen, leaving, however, three of chlorine in their place; the aldehyde, therefore, is decomposed, and $C_4Cl_3HO_2$ remains, which is chloral.

Pure hydrate of chloral, according to Dr. Rieckher, does not take fire when heated in a spoon over a spirit lamp, but evaporates without residue, [the alcoholate when similarly treated inflames]. Nitric acid sp. gr. 1.20, either cold or hot, should not produce any reaction with it. I find that its aqueous solution produces a dense precipitate when mixed with solution of subacetate of lead.

The hydrate is readily dissolved by alcohol, ether, oil of turpentine, benzole, bisulphide of carbon and the fixed oils. The solution in the last named article might prove of value to the physician as a topical application, perhaps available in neuralgic or gouty affections.

When equal parts of camphor (in small pieces) and hydrate of chloral in crystals are shaken together in a vial and allowed to stand, they become fluid, forming a clear solution. This might also be of use as an external remedy.

When hydrate of chloral and sulphuric acid are mixed, a great reduction of temperature takes place.

Both pure chloral and its aqueous solution dissolve morphia freely.

Quinia is soluble, to a considerable extent, in a strong solution of the hydrate, six grains readily dissolving in one and a half fluid-drachms.

Cinchonia, strychnia, veratria, aconitia, atropia, are also soluble in the same menstruum.

From this it appears to be a general solvent for the alkaloids, and perhaps their solutions might be used with advantage for making ointments, or for mixing with oils for liniments, &c.

The solution of quinine just mentioned is somewhat fluorescent, but not quite as much so as that of the sulphate.

When chloral and glycerin are mixed a crystalline substance is formed in a few hours.

Chloral is a good solvent for camphor or for crystallized carbolic acid, which it deprives of odor to a great extent and renders it quite soluble in water.

When the latter solution is added to sulphuric acid a pink-colored solid is produced, which is probably a compound of sulpho-carbolic acid and chloral.

When benzoic acid is added to chloral and slightly heated it dissolves, and when cold the mixture solidifies into beautiful radiating crystals.

When hydrate of chloral is added to a strong solution of the bichromate of potassa and heated, after the addition of a few drops of nitric acid, a blue color is gradually developed. If liquid ammonia is afterwards added in large excess it assumes a currant-red color. Chloroform, treated in the same manner, produces a deep orange, retaining this even after the addition of ammonia.

If caustic soda is added to the mixture of chromic acid and chloral a bright green color is produced. With solution of potassa in considerable quantity, a blue color occurs.

When alcohol is mixed with solution of bichromate of potassa and nitric acid and heated, after caustic soda is added in excess, a green color is produced which quickly changes to brown.

I have placed these reactions together so as to compare them with one another, thinking that they might possibly lead to the discovery of a test for chloral.

NOTE ON CHLORAL HYDRATE.

By C. J. RADEMAKER, M. D.

Receiving several samples of hydrate of chloral from different sources, and noticing considerable difference in their physical appearance, I was induced to make a chemical examination of several different samples.

The first sample was manufactured by Messrs. De Haen & Co., Hanover, Germany. This sample was moist and had the appearance of acetate of potash when deliquescent. Upon opening a bottle of this

sample a large amount of white fumes arose; bringing a piece of moistened blue litmus paper near the fumes, the paper was reddened; bringing a rod dipped in aqua ammoniæ near the fumes, they became more white and dense. Dissolving part of this sample of chloral hydrate in distilled water and treating it with a solution of nitrate of silver a white precipitate was produced, all of which showed the presence of H Cl. The solution of chloral hydrate was then heated with iodine and carbonate of potash, but there was no iodoform produced, showing the absence of alcohol.

Heated in a platina spoon it was entirely volatilized.

This sample of chloral hydrate was soluble in alcohol, ether, chloroform, bisulphide of carbon, and turpentine. When treated with turpentine, it at first left a yellow oily looking sediment, but it was gradually dissolved. When treated with caustic potash, there was so much heat evolved that the liquid began to boil, the liquid turning to a lemon yellow color. Sulphide of ammonium added to a solution of chloral hydrate, produced at first a yellow color, which gradually became red, and then deposited a dirty yellow precipitate, the supernatant liquid remaining black.

If free ammonia was added to a solution of chloral hydrate and then treated with sulphide of ammonium, the following changes occurred: first a yellow color, which gradually became viscid and black, without depositing a precipitate.

The second sample was manufactured by Schering.

This sample was crystalline. Upon opening a bottle of this sample white fumes arose, but not in such large quantities as in De Haen's; with litmus they had an acid reaction, and nitrate of silver produced a white precipitate in a solution of the crystals. The reactions with ammonia and sulphide ammonium were the same as with De Haen's. The solution heated with carbonate of potash and iodine produced no iodoform. When treated with caustic potash there was not so much heat evolved as in De Haen's, and the liquid remained colorless. The crystals were also soluble in alcohol, ether, chloroform, turpentine and bisulphide of carbon without residue.

Sample 3d.—Liebreich's,—Upon opening a bottle of this sample no fumes arose; the solution of the crystals was perfectly neutral to test paper, and produced no precipitate with nitrate of silver.

The other reactions were the same as in the two preceding samples.

The amount of chloroform produced by decomposing the three different samples of chloral hydrate by means of caustic alkali, was as follows :

100 grs. of Liebreich's produced 60 grs. chloroform.

“ “ Schering's “ 60 “ “

“ “ De Haen's “ 50 “ “

It will be seen that sulphide of ammonium reacts the same with chloral hydrate which has been decomposed, as with a pure article, consequently cannot be a test for the purity of chloral hydrate. I may remark here that I have noticed that if chloral hydrate becomes slightly acid, that decomposition goes on very rapidly afterward.

Louisville, Sept. 15th, 1871.

SOAP LINIMENT U. S. P.

BY J. C. WHARTON.

Although this preparation is not to be ranked among the difficult ones of the pharmacopœia, yet a simpler and more expeditious manipulation is quite possible. The officinal process is not the most direct, and as it requires the heat of a water-bath, it presents at least two other undesirable features. One is the evaporation of the alcohol, and the other is the danger of fire from its inflammable vapor in careless hands. There is no necessity for fire to be used at all, and, in fact, it is but a slow method of arriving at a result which a little mechanical effort will reach in much less time, besides yielding a more satisfactory product. What is meant by the mechanical effort is simply to pound the soap in a mortar, gradually adding the water first, then the alcohol, &c., as given in the formula below. By the first step in the process a very soft mass is formed, just as would be the case if in making soap pills a little too much water should be added. The succeeding steps consist in dissolving the soap, camphor and oil of rosemary in the alcohol—an easy process, as will be discovered on trial. In beating the soap and water together it is best not to mix them immediately, as it would then be difficult to get the pestle upon the lumps of wet soap; but if the mortar is dry, and the soap is introduced dry, either in a mass, lumps or shavings, it may be easily beaten, and if it is well pounded in this condition, it is rendered so plastic that the water may then be readily incorporated, and the whole preparation completed in a short while. I think it no trouble to commence and

finish the amount prescribed in the pharmacopocia within an hour, which, considering the time occupied in filtering, is not longer than many extemporaneous prescriptions require.

The following method is therefore offered in place of the present one of the U. S. P.

Take of Soap, in pieces, four troyounces.

Camphor, two troyounces.

Oil of Rosemary, half a fluidounce.

Water, four fluidounces.

Alcohol, two pints.

Beat the soap in a dry mortar until the lumps have disappeared; then add by degrees the water and triturate; when well mixed add the alcohol gradually, afterwards the camphor and oil of rosemary, rubbing with the pestle till all are dissolved, and filter through paper.

Nashville, August, 21st, 1871.

SYRUP OF SANTONATE OF SODA.

BY J. DONDE.

A good vermifuge syrup is prepared by the following formula:

Santonate of Soda, 30 grains,

Distilled water, 1 ounce,

Syrup, 18 fluidounces.

Boil the syrup till it is concentrated to 32° Bmé. Remove from the fire, let it cool a few minutes, then add the salt dissolved in the water.

You obtain 18 fluidounces of a transparent syrup, without a bitter taste, of 35° when cold. Each fluidounce contains one grain of santonine. I have been preparing this syrup, for nine years, in the drug store of Mr. Font.

Santonate of Soda.

Santoninic Acid, in fine powder, 2 ounces.

Caustic Soda Lye, pure, 4 fluidounces

Distilled Water, 12 fluidounces.

Put all in a flask, and heat in a sand-bath, or over a stove, to 70° or 80°, until the solution of the santonine is complete, which usually requires about half an hour; then remove from the fire, and when cold it is conveniently evaporated. In cooling, prismatic crystals with an oblique base are obtained, containing 54 per ct. of santonine.

When the solution is evaporated until a strong pellicle is formed, on cooling it is converted into a mass of acicular crystals of a pearly aspect, which contain 60 per ct. of santonine.

The santonate of soda is soluble in $1\frac{3}{4}$ its weight of water (20° C.), and has a slightly bitter taste.

Merida, August 14, 1871.

HISTORICAL NOTES ON THE *RADIX GALANGÆ* OF PHARMACY.

BY DANIEL HANBURY, ESQ., F.R.S. and F.L.S.*

In discovering and describing the plant which yields the *Radix Galangæ minoris* of pharmacy, Dr. Hance has added an interesting chapter to the history of a substance which for many centuries has been an object of trade between Europe and the East. Galangal does not, indeed, possess properties which can claim for it the rank of an important medicine, being simply a pungent aromatic of the nature of ginger; but it has so long held a place in the pharmacopœias of Europe, and enters into so many ancient receipts, that I need hardly apologize for offering to the Linnean Society a few notes on its pharmacological history.

Galangal was apparently unknown to the ancient Greeks and Romans; at least no mention of it can be found in the classical authors. Its introduction into Europe was due to the Arabians, in whose writings it is noticed at a very early period.

Thus Ibn Khurddbah, an Arab geographer who served under the Khalif Mutamid, A.D. 869–885, has left some information respecting China, after which he speaks of the country of Sila, which exports. . . . musk, aloes [*i. e.* aloes-wood], camphor, porcelain, satin, cinnamon [cassia], and *galangal*.†

The celebrated geographer Edrisi, who wrote A.D. 1154, observes of Aden, that it is the port for Scinde, India and China, from which last country are brought musk, aloes-wood, pepper, cardamoms, cin-

* Reprint from the Linnean Society's Journal, xij, communicated by the author.

† "Le Livre des Routes et des Provinces, par Ibn Khordadbeh, traduit et annoté par C. Barbier de Meynard," Journ. Asiatique, 3ér. vi. tome v. (1865), p. 294.

namom, *galangal*, mace, myrobalans, camphor, nutmegs, cloves and cubebs.*

The Arabian physicians, from Rhazes and Alkindi, in the tenth and eleventh centuries downwards, make frequent reference to *galangal* as an ingredient of the complicated medicines then in use.

Among the later Greeks I cannot find any mention made of this drug prior to Myrepsus, who probably resided as physician at the court of the Greek Emperors at Nicæa in the thirteenth century; though several authors declare it is referred to much earlier. It is constantly named by Actuarius, who may have been contemporary with Myrepsus.

In a work published some years ago in Paris, entitled "*Assises de Jérusalem, ou Recueil des Ouvrages de Jurisprudence composés pendant le xiii^e siècle dans les Royaumes de Jérusalem et de Chypre*,"† there is a remarkable list of commodities liable to duty during the twelfth century at the port of Acon in Syria (the modern Akka), at that period a great emporium of Mediterranean trade, in which many Indian spices and drugs, including *galangal*, are enumerated.

We find *galangal* also noticed, together with ginger and zedoary, as productions of India imported into Palestine, by Jaques de Vitri, Bishop of Acon in the early part of the thirteenth century;‡ and in the "*Romance of Godefroi de Bouillon*," a poem written in the twelfth century, it is named as one of the rarities of the East, which the Crusaders were deluded into believing would be found in plenty in the Holy Land.§

Marco Polo, in his travels in Asia in the thirteenth century, observed *galangal* to be produced in Southern China (Province of Foo-chow?), as well as in Java.||

About this period it was also known in Western Europe. St. Hildegard, Abbess of Bingen, who died in A.D. 1179, names it as *galgan*, and comments upon its medicinal virtues.¶

* "*Géographie d'Edrisi*," traduite par A. Jaubert, Paris, 1836-40, 4to, tome i p. 51.

† Paris, 1841-43, fol. tome ii. chap. 142.

‡ Vitriaco (Jac. de), "*Historia Orientalis et Occidentalis*," 1597, 8vo, p. 172.

§ "*Bibliothèque de l'Ecole des Chartes*," tome ii. (1840-41), p. 437.

|| "*Le Livre de Marco Polo*" (éd. Pauthier: Paris, 1865), pp. 522, 561.

¶ "*S. Hildegardis Abbatissæ Opera omnia*," accurate J. P. Migne, Paris, 1855, p. 1134.

Galangal is catalogued with other spices (as ginger, cinnamon, cloves and nutmegs) in the tariff of duties levied in the port of Colibre (Collioure), in Roussillon, in A.D. 1252.*

A more interesting notice of the drug is contained in the journal of expenses of John, King of France, from July 1, 1359, to July 8, 1360, during his residence in England, preserved in the "Comptes de l'Argenterie des Rois de France." Besides purchases of sugar, mace, ginger, cloves, pepper, cardamoms, *calamus aromaticus*, and many other drugs, we find three entries for *galangal*, namely, for $\frac{1}{2}$ lb. 18*d.*, for 2 lbs. 6*s.*, and for 1 lb. 22*d.*† As the price of gold happens to be also mentioned in one part of the account, it is easy to form an estimate of the relative value of galangal. This shows the price of 3*s.* per pound to be equivalent to about 10*s.* of our present money—not extravagant for a commodity transported from the remotest Asia to the centre of England.

In Professor J. E. Thorold Rogers' "History of Agriculture and Prices in England," there are eleven entries indicating the price of galangal in England between A.D. 1264 and 1376. The highest was in 1307, when 2 lbs. of the spice purchased for the Crown were paid at the rate of 6*s.* 8*d.* The other entries indicate the price as from 1*s.* 6*d.* to 3*s.* per lb.

In the fifteenth century galangal was evidently in common use; for Saladinus, physician to one of the Princes of Tarentum, *circa* A.D. 1442–1458, reckons it among the things *necessaria et usitata*, which should be found in the shop of every *aromatarius*.‡ As might be expected, it is included in all the older pharmacopœias and antidotaria.

Garcia D'Orta, first physician to the Portuguese Viceroy of India at Goa, and a resident in India for thirty years, is, I think, the first writer to point out (1563) that there are two sorts of galangal—the

* Capmany, "Memorias Historicas sobre la Marina, Comercio y Artes de la Ciudad de Barcelona," 1779, tome ii. p. 20.

† The original entries are as follows:

"Lundy VII^e jour d'octobre. Jehan Kelleshulle, espicier à St. Boutoul, pour especes prises de li pour le Roy. . . . Galingal, demie livre 18*d.* Jendy XIII^e jour de février. . . . Galingal, 2 livres, 6*s.* Samedi XXVII^e jour de juing. . . Berthélemi Mine, espicier. . . . Galingal, une livre, 22*d.* . . ."

L. Douet D'Arcq, "Comptes de l'Argenterie des Rois de France au XIV^e siècle." Paris, 1851, 8vo. pp. 218, 232, 265, 266.

‡ "Compendium Aromatariorum," Bonon. 1488, fol.

one, as he says, of smaller size and more potent virtues brought from China, the other, a thicker and less aromatic rhizome, produced in Java.*

This distinction is perfectly correct. The Greater Galangal, which is termed *Radix galangæ majoris*, is yielded by *Alpinia galanga*, Willd., a plant of Java;† the lesser, called *Radix galangæ minoris* or simply *Radix galangæ*, is derived, as we now know, from the plant which Dr. Hance has described as *A. officinarum*. It is the latter drug alone that is at present found in European commerce.‡

The name *galangal*, *galanga* or *garingal*, *Galgant* in German, is derived from the Arabic *khanlanjan*; whether that word may be a corruption of the Chinese name *liang-kiang*, signifying *mild ginger*. I must leave it to others to decide.

Let me say a few words regarding the uses of galangal. As a medicine, the manifold virtues formerly ascribed to it must be ignored; the drug is an aromatic stimulant, and might take the place of ginger, as indeed it does in some countries. That it is still in use in Europe is evident from the exports from China and from the considerable parcels offered in the public drug sales of London.§ The chief consumption, however, is not in England, but in Russia.|| It is there used for a variety of purposes, as for flavoring the liquor called *nastoika*. The drug is also employed by brewers, and to impart a pungent flavor to vinegar, a use noticed by Pomet¶ so long

* "Colloquios dos Simples e drogas he cousas medicinais da India," Goa, 1563, Colloquio 24.

† *Maranta Galanga*, Linn., Sp. Pl. and Swartz, Obs. Bot.

‡ Moodeen Sheriff, in his learned "Supplement to the Pharmacopœia of India," (Madras, 1869), states that in the bazars of Hyderabad and in some other parts of India the rhizome of *Alpinia calcarata*, Rosc., is sold as a sort of galangal; and that a species of *Alpinia* growing in gardens about Madras, which, conceiving it to be new to science, he has described and named as *A. Khulinjan*, has a rhizome much resembling the Lesser Galangal of China.

§ Three hundred bags, each 112 lbs., imported from Whampoa, were offered for sale by Messrs. Lewis and Peat, 27 Oct., 1870. The quantity was not thought remarkable; and I am assured that a single buyer will sometimes purchase such a lot at one time for shipment to the continent.

|| Professor Regel, of St. Petersburg, and A. v. Bunge, of Dorpat, and Mr. Justus Eck, of London, have all obligingly supplied me with information as to the use of galangal in Russia. My thanks are also due to my friend, Professor Flückiger, who, on this as on other occasions, has kindly offered me valuable suggestions.

¶ "Histoire des Drogues," Paris, 1694, fol., part 1, p. 64.

ago as 1694. As a popular medicine and spice, it is much sold in Livonia, Esthonia, and in Central Russia; and by the Tartars it is taken with tea. It is also in requisition in Russia as a cattle-medicine; and all over Europe there is a small consumption of it in regular medicine.

There is doubtless some quantity of galangal of both sorts used in India. By a "Report on the External Commerce of the Presidency of Bombay for the year 1865-66," I find that there was imported into the port of Bombay of "*Gallingall*" from China 520 cwt., from Penang, Singapore, the Straits of Malacca and Siam 70 cwt., and from ports in Malabar 834 cwt. Of the total quantity (1424 cwt.), 716 cwt. was reshipped to the Arabian and Persian Gulfs.

According to Rondot, writing in 1848, the trade in this drug is on the decline;* and the statistics which I have examined tend strongly to show that this is the fact.

The foregoing notes may be thus summarized:

1. Galangal was noticed by the Arab geographer Ibn Khurdábah in the ninth century as a production of the region which exports musk, camphor and aloes-wood.

2. It was used by the Arabians and later Greek physicians, and was known in northern Europe in the twelfth century.

3. It was imported during the thirteenth century with other eastern spices by way of Aden, the Red Sea and Egypt, to Akka, in Syria, whence it was carried to other ports of the Mediterranean.

4. Two forms of the drug were noticed by Garcia d'Orta in 1563; these are still found in commerce, and are derived respectively from *Alpinia Galanga*, Willd., and *A. officinarum*, Hance.

5. Galangal is still used throughout Europe, but is consumed most largely in Russia. It is also used in India, and is shipped to ports in the Persian Gulf and Red Sea.

BRIEF REMARKS ON THE BARK OF *RHAMNUS FRANGULA*, OR BLACK ALDER TREE.

By H. C. BALDON, Edinburgh.

Some time since a gentleman from Holland applied to me to prepare for him a decoction of the *Rhamnus Frangula* bark. The bark he brought with him, having previously found that he could not obtain

* "Commerce d'Exportation de la Chine," Paris, 1848, p. 98.

it in this country. He spoke most enthusiastically of its good properties as a gentle cathartic, which had proved very beneficial to himself, and which was much used and esteemed by the medical profession in Holland. He kindly offered to procure for me a small quantity of the bark. To my surprise, I shortly afterwards received a bale containing nearly a quarter of a cwt., accompanied by the following letter. He writes, "I hope you will find it giving as much benefit generally as I have derived from it personally. The preparation of my Dutch physician was 3 or 4 drams of bark to a pint of water boiled down to half a pint. Two or three tablespoonfuls occasionally night and morning, as an aperient. Than this nothing can be more simple or less injurious, and it does not require increase of dose, but the contrary."

I am aware that this drug is not altogether unknown in this country, though I believe rarely or never used. In the 2d volume of the first series of the *Pharmaceutical Journal*, page 721, I find a letter signed George Mennie, Plymouth, speaking very favorably of it as a purgative and alterative, and again in the 9th volume, page 537, there is an analysis by M. Benswanger.

I have repeatedly taken the decoction myself, and find the taste not unpleasant, with a slight prussic acid flavor, of which the analysis shows traces. It operates gently as an aperient, without griping, in doses of 2 or 3 tablespoonfuls. It appears to me to possess properties which should in many cases render it a valuable substitute for senna,—which is often found drastic in its effects, and is nauseous to take,—and to be especially suitable for children.

In Holland it must be very plentiful, as it was charged me only at the rate of about 10*d.* per lb., including cost of carriage.—*Pharm. Journ., Lond., Aug. 19, 1871.*

SAPONACEOUS PLANTS.

BY P. L. SIMMONDS.

Many plants in different countries furnish useful substances for soap to the natives, where there are no conveniences or materials for manufacturing the ordinary soap of commerce. Prominent among these are the soapworts, tropical plants belonging to the genus *Sapindus*. The Hindoos use the pulp of the fruit of *Sapindus detergens* for washing linen. Several of the species are used for the same purpose

instead of soap, owing to the presence of the vegetable principle called saponine. The root and bark also of some species are said to be saponaceous. The capsule of *Sapindus emarginatus* has a detergent quality when bruised, forming suds if agitated in hot water. The natives of India use this as a soap for washing the hair, silk, etc. The berries of *Sapindus laurifolius*, another Indian species, are also saponaceous. The name of the genus *Sapindus* is merely altered from *Sapo-indicus*, Indian soap, the aril which surrounds the seed of *S. Saponaria* being used as soap in South America. According to Browne, the seed-vessels are very acrid; they lather freely in water, and will cleanse more linen than thirty times their weight of soap, but in time they corrode or burn the linen. This assertion, however, requires confirmation. Humboldt tells us that, proceeding along the river Carenicuar, in the Gulf of Cariaco, he saw the native Indian women washing their linen with the fruit of this tree, there called the *Para para*. Saponaceous berries are also used in Java for washing. The fresh bark of the root *Monnina polystachia* (R. and P.), called *Yal-hoi*, pounded and moulded into balls, is used by the Peruvians in place of soap.

Saponine exists in many other seeds and roots—in the legumes of *Acacia concinna*, in which a considerable trade is carried on in some parts of India, and in the root of *Vaccaria vulgaris*, *Agrostemma Githago*, and *Anagallis arvensis*. It also occurs in various species of *Dianthus* and *Lychnis*, and in the bark of *Silene inflata*. *Gypsophila struthium* is used by the Spaniards for scouring instead of soap. The bruised leaves of *Saponaria officinalis*, a native of England, forms a lather which much resembles that of soap, and is similarly efficacious in removing grease spots. The bark of *Quillaia saponaria* of Central America answers the same purpose, and is used as a detergent by wool dyers. It has been imported largely into France, Belgium, etc., and sold in the shops as a cheap substitute for soap. The fruit of the *Bromelia Pinguin* has also been found useful as a soap substitute.

A vegetable soap was prepared some years ago in Jamaica from the leaves of the American aloe (*Agave Americana*), which was found as detergent as Castile soap for washing linen, and had the superior quality of mixing and forming a lather with salt water as well as fresh. Dr. Robinson, the naturalist, thus describes the process he adopted in 1767, and for which he was awarded a grant by the House of Assembly of Jamaica: The lower leaves of the Curaca or Coratoe (*Agave*

Karatu), were pressed between heavy rollers to express the juice, which, after being strained through a hair cloth, was merely inspissated by the action of the sun, or a slow fire, and cast into balls or cakes. The only precaution deemed necessary was to prevent the mixture of any unctuous materials, which destroyed the efficacy of the soap. Another vegetable soap, which has been found excellent for washing silk, etc., may be thus obtained: To one part of the cake add one and a half part of the before-named *Agave Karatu*, macerated in one part of boiling water for twenty-four hours, and with the extract from this decoction mix 4 per cent. of rosin.

In Peru, the leaves of the *Maguey Agave* are used instead of soap; the clothes are wetted, and then beaten with a leaf that has been crushed; a thick white froth is produced, and after rinsing the clothes are quite clean. The pulpy matter contained in the hard kernel of a tree, called locally *Del Jaboncillo*, is also used there for the same purpose. On being mixed with water, it produces a white froth. In Brazil, soap is made from the ashes of the bassena or broom plant (*Sida lanceolata*), which abounds with alkali. There are also some barks and pods of native plants used for soaps in China. The soap plant (*Amole*) of California, *Phalangium pomeridianum*, is stated by Mr. Edwin Bryant to be exceedingly useful. The bulbous root, which is the saponaceous portion, resembles the onion, but possesses the quality of cleansing linen equal to any olive soap manufactured.

From a paper read before the Boston Society of Natural History, it appears that this soap plant grows all over California. The leaves make their appearance about the middle of November, or about six weeks after the rainy season has fairly set in; the plants never grow more than a foot high, and the leaves and stalk drop entirely off in May, though the bulbs remain in the ground all the summer without decaying. It is used to wash with in all parts of the country, and by those who know its virtues it is preferred to the best of soap. The method of using it is merely to strip off the husk, dip the clothes into the water, and rub the bulb on them. It makes a thick lather, and smells not unlike brown soap.

At St. Nicholas, one of the Cape Verde Islands, they make a soap from the oil of *Jatropha Curcas* seeds, and the ashes of the burnt papaw-tree leaf. The oil and ashes are mixed in an iron pot heated over a fire, and stirred until properly blended. When cool it is rolled up into balls about the size of a six-pound shot, looking much like our

mottled soap, and producing a very good lather.—*Druggists' Circular*, Aug., 1871, from *The Journal of Applied Science*.

SUNFLOWER-SEED OIL.

The highly ornamental and extensive genus of plants to which this plant belongs derives its scientific name, *helianthus*, from *helios*, sun, and *anthos*, a flower, on account of the brilliant color of the flower, and from the erroneous idea, propagated by poets and others, that the flowers always turned towards the sun—hence, also, the French name *tournesol*. It appears to possess far more profitable qualities than have been hitherto supposed, and may be cultivated with advantage and applied to many useful purposes. An acre of land will contain 25,000 sunflower plants, at twelve inches distance from each other.

The great variety of valuable properties belonging to the sunflower seed have been much neglected. No plant produces such fine honey and wax, and when the flower is in blossom, bees abound in it. The produce will be according to the nature of the soil and mode of cultivation; but the average has been found to be fifty bushels of the seed per acre, which will yield fifty gallons of oil. The oil is excellent, when refined, for table use, for burning in lamps, for soap making, and for painting—especially for mixing green and blue paints. The marc, or refuse of the seeds of the above quantity after the oil has been expressed, made into cakes, will produce 1500 lbs., and the stalks, when burnt for alkali, will give 10 per cent. of potash. The green leaves of the sunflower, when dried and burnt to powder, mixed with bran, make excellent fodder for milch cows. It makes a beautiful soap, particularly softening to the hands and face, and is pleasant to shave with. The cake is superior to linseed for fattening cattle. Sheeps, pigs, pigeons, rabbits, poultry of all sorts, etc., will fatten rapidly upon it, and prefer the seed to any other; it causes pheasants in particular to have a much more glossy plumage and to be plumper in the body. It also increases the quantity of eggs from poultry fed with it. The seed, shelled, makes when ground very fine sweet flour for bread, particularly tea-cakes.

The sunflower will grow in any corner that may be vacant, and will give a farm a most agreeable garden-like appearance. It should be planted about six inches apart, and about one inch deep, and when

about one foot high should be earthed up; it then will require no further attention. Every single seed will produce 1000 or more; the main head generally produces 800 to 1000 seeds, and there are usually four collaterals, producing 50 to 60 seeds each. But it is not the seed only that is valuable, for by treating the stalk exactly as flax, it will produce a fibre as fine as silk, and that in large quantities. Now that rags become so valuable, arising from the unprecedented demand for paper, the stalk might be made useful for that purpose.

On some grounds two crops may be growing at the same time. When the farmer has given his early potatoes a last hoeing, he may plant this seed twelve inches apart in the ridges. The Chinese have it by thousands of tons and worship it. There can be no doubt that many of their silk goods have a large portion of the sunflower fibre in them. According to Boussingault, some experiments made by M. Gauzac, of Dagny, gave the produce per acre of seed, at 15 cwt. 3 qr. 14 lb.; the oil per acre 275 lbs., being 15 per cent. and the cake 80 per cent. Next to poppy-seed oil, sunflower oil burns the longest of any in equal quantities. The seeds vary in color, being either white, grey, striped or black. From them is expressed a palatable clear and flavorless oil, the demand for which in Russia is very great. It is exported from St. Petersburg at about 10s. 6d. the cwt., and is said to be extensively used, like cotton-seed oil, after purifying, for adulterating olive or salad oil.

In Russia a considerable quantity is grown for oil pressing. The plant is largely cultivated in Kiels and Podolia, eastward on the black soil lands. The stalks are used for fuel. The manufacture of the oil, which was formerly confined to the Government of Voroneje, has recently been carried on in that of Saratov, and in the town of that name, there were, in 1867, at least thirty oil-presses. Mr. Alexander Knobloch, of Sarepta, has one worked by steam-power. The seed is supplied by the peasants of the neighborhood. The production in Russia in 1867 (including a few other miscellaneous oil seeds) was officially stated at 335,000 cwt. At Voroneje 6000 to 8000 poods (of 36 lbs.) of seeds are produced. In Russia the seed sells at about 40 copecks the pood, or 2 roubles 60 copecks the chetwert; the oil at $3\frac{1}{2}$ to 4 roubles the pood.—*Pharm. Journ. and Trans.*, August 5, 1871, from *Journal of Applied Science*.

THE PREPARATION OF THEINE.

BY CHAS. FREDIGKE.

In the *Medical Times and Gazette* Mr. Lewis Thompson publishes an article entitled, "Use of Theine as a Therapeutical Agent," reported in the *Druggists' Circular* for June, page 96, in which he described a convenient method for the preparation of this agent; but the writer found the hollow and movable axis of the rotary coffee-roaster rather awkward, besides its length of three feet much too short to insure the deposition of all the crystallizable particles of the vapor given out by two pounds of coffee. The complete utilization of that amount of vapor would require a tube (being one inch in diameter) nine to twelve feet in length, and even longer. To obviate these disadvantages, recourse was had to a little stationary arrangement. It consists in a Linden's patent coffee-roaster, a thin cast iron pot, whose contents may be turned over by a perforated and toothed shovel. To the cover a tube of two inches in diameter was fitted, the whole length of which is three feet, made in three sections, for convenient removal and cleaning. Put on a stove and heat the pot to between 300° and 400° , then turn in the coffee, fit on the cover and pipe, passing the free end of the latter through a card board into a gallon bottle, then raise and continue the heat for 15 or 20 minutes, during which time the crank must be turned, and the cover now and then raised to examine the color of the beans, though this is not necessary after two or three repetitions of the process, when the cover may be luted on by a cement made with a little water out of two parts of linseed meal and one part plaster of Paris; besides, with a brisk fire the operation of roasting requires but ten minutes, when the coffee will have assumed the right shade of color. During the process the tube and the bottle grow rather hot, and it is advantageous to cool them by wet rags, but it is not absolutely necessary. The aqueous portion of the vapor condenses in the bottle to the amount of two ounces, and upon removal of the cover and tube, they will be found coated with a thin film, which is washed off by eight ounces distilled water, with which the bottle is also well rinsed; then the liquid is filtered and evaporated over a water bath to two ounces; to these, two ounces of dried carbonate of potassa is added (very easily made by exsiccating $2\frac{1}{4}$ ounces of salt of tartar in an iron ladle [fitted with a cover], one of three inches diameter by one inch depth is large enough, or a Hessian crucible will answer very well), the mixture set aside over night to allow

the precipitate of theine to form. If the alkaline solution is very concentrated the precipitate will collect on the surface, but on adding a little water it will subside, the supernatant liquid is then decanted, the deposit redissolved in distilled water, evaporated over a water bath to dryness, and finally crystallized from a boiling solution in alcohol, which is distilled off and allowed to evaporate.

Theine obtained in this way is sufficiently pure for medicinal use. Two pounds of Rio coffee yielded 104 grains. It seems strange that the decided therapeutic value of this agent has thus far failed to bring it into more general use by the profession.

The above arrangement is not expensive, costing two dollars and a half, and is also useful for some similar purposes, such as the preparation of *baccæ juniperi tostae*, *glandes quercus tostae*, etc., in fact for the torrefaction or incineration of many organic substances. A domestic process such as this, of almost weekly occurrence in every family, is thus turned into an interesting and profitable pharmacal operation.

To avoid repetition, the reader is referred for some further points of information on the subject, to the article above mentioned.—*The Pharmacist*, August, 1871.

CHICAGO, July, 1871.

OBSERVATIONS ON THE COLOR OF FLUORESCENT SOLUTIONS.

BY HENRY MORTON, PH. D.,

President of the Stevens Institute of Technology.

As the result of a series of experiments to be presently described, I have come to the curious conclusion that all the familiar fluorescent solutions, such as the tincture of turmeric, of agaric, of chlorophyl, and the solution of nitrate of uranium, emit light of the same color by fluorescence, namely, blue identical with that developed by acid salts of quinine. This blue, however, as is well known in the case of quinine, is not of a single tint or refrangibility, but yields a continuous spectrum, in which the more refrangible rays predominate.

My attention was first drawn to the subject by observing that a specimen of mixed asphalt, which is here largely used in the preparation of pavements, yielded a light-yellow solution with alcohol, which fluoresced blue, and an orange solution with turpentine, which fluoresced green. It at once occurred to me that the green color was

simply due to the absorptive action of the colored solution, and not to the development of green rays. Examined with the spectroscope, the seemingly green fluorescence showed no increase in the green or yellow part of the spectrum, as compared with the blue fluorescence, but only an absorption of the red and violet ends. When, however, a piece of fluorescing canary glass or solid nitrate of uranium was examined, the green light was (as is well known) largely augmented. I also found that when, by filtration through animal charcoal, the solution in turpentine was reduced in color, the green tint of the fluorescence disappeared in a corresponding degree. This alone would, however, have proved nothing, as a green fluorescing matter might have been absorbed by the charcoal, but in connection with the spectroscopic result it was of interest.

I next took up for examination the tincture of turmeric. This is set down in standard works, such as those of Du Moncel and Becquerel, as fluorescing red. This solution, when concentrated, has a rich orange-red color, and the jacket of a Geissler tube being filled with it, all the light reaching the eye, from the electric discharge within, is of a deep orange or red color. If, however, the solution is simply diluted until its color is reduced to a rich yellow, the fluorescence appears green. The same result follows from filtration through bone black, with a marked increase in the amount of fluorescence visible, as the light-absorbing coloring matter is removed. By continuing the decoloration until the liquid is colorless or of a very light tint, its fluorescence is distinctly blue.

The results with the spectroscope when it was applied to this substance, were the same as with the solution of asphalt. Such also is the case with tinctures of chlorophyl, which, when fresh and green, gives apparently a green light, and, when old and brown, a gray color.

Finally, I took up the nitrate of uranium, about which such contradictory statements have been published. This salt in its solid state gives a brilliant green fluorescence, whose spectrum is figured by Becquerel, and abounds in green rays; but in solution it gives a very feeble fluorescence, far inferior to that of turmeric, and of no more green tint than would be due to its yellow color. So in fact says also the spectroscope.

From these results it would seem that the molecules of fluorescent bodies *in solution* are not capable of restricting their vibrations to

limited ranges, but move at rates corresponding with all refrangibilities, having simply an excess of the higher ones, though the same substance in the solid state may act quite differently, as in the case of nitrate of uranium, and possibly the fluorescent material in the asphalt, which may be related to the solid hydrocarbon fluorescing green, which Becquerel mentions (*La Lumière*, tome i, p. 382).

In this general connection let me mention that I have observed that while the acid salts of quinine generally are fluorescent, the chloride is not, and that hydrochloric acid will decompose the acid sulphate so as to destroy its fluorescence.

There are several other points in connection with this and the foregoing subject, which I must leave for a subsequent discussion.

July, 1871.

P. S.—Aug. 1st. I have just obtained results with turmeric, which seem to indicate that its fluorescence is due to the presence of a substance not yet observed, soluble in water, and without any color.—*Amer. Journ. of Science and Arts*, Sept., 1871.

PREPARATION OF DILUTED PHOSPHORIC ACID.

BY E. B. SHUTTLEWORTH.

The officinal process of the British pharmacopœia for diluted phosphoric acid is a troublesome and dangerous one. The use of closed glass vessels, when operating on an explosive substance like phosphorus, is attended with considerable risk, not only to the apparatus, but the person and property of the operator. The apparatus is unnecessarily complicated, involving the employment of a retort and Liebig's condenser, while the advantage gained on the score of economy of acid is so trivial as to be practically unworthy of consideration.

A much better process is that of the *United States Pharmacopœia*. In this the diluted nitric acid is placed in a porcelain capsule; the phosphorus is added and the whole covered by an inverted glass funnel, of such dimensions that its rim rests on the inside of the capsule, near the surface of the liquid. A gentle heat is applied, and if necessary, the action moderated by the addition of a little distilled water, which can be readily applied without in any way disturbing the operation. After the phosphorus has disappeared, the funnel is removed, and the concentration of the acid is effected in the same vessel, by a further application of heat.

As far as the apparatus is concerned, it will readily be seen that the latter process is much more simple ; the danger of explosion and fracture is almost impossible ; most of the nitric acid is condensed, and trickles down the funnel into the capsule, while the manipulation is easier, and the operation can be carried to completion in the vessel in which it was commenced.

In both processes, however, the nitric acid is used in a very dilute form. According to the experience of the writer this occasions a waste of time and is attended with no advantage. The action of the dilute acid on the phosphorus is very feeble, and, in operating on larger quantities—say ten pounds of phosphorus—eight or ten days are required for the solution. The acid need not be weaker than that of sp. gr. 1.24. At this strength there is no danger of explosion, or a too rapid action. After many and cautious trials I have now no hesitation in operating on the above-named quantity of phosphorus, with a carboy of acid of the strength named, and by so doing the solution may be effected in from fifteen to twenty hours. Nothing at all approaching to an explosion has ever occurred, but the precaution is always taken to have a quantity of distilled water near at hand, so that it can be at once added if, by the concentration of the acid, the action becomes at all violent.

In driving off the excess of nitric acid, after the phosphorus has been dissolved, a considerable degree of heat will be required, and the greatest care should be taken that the acid has become quite cool, before adding the water for dilution. If this is neglected, and the water is added to the hot acid, an explosion is inevitable, owing to the rapid change of the water into the gaseous form. Indeed, it would be much less dangerous to pour water into a ladleful of melted lead.

For this, as well as all other operations in which solutions of acid or alkali are employed, the use of enamelled iron vessels must be avoided ; nothing but porcelain, or at least wedgewood, should be used. In this connection the writer would protest against the use of enamelled vessels for any of the purposes of pharmacy in which an acid, or alkali proof material is required. I have never yet met with a vessel of this kind that was at all reliable, being either of a material readily acted on, or pierced with minute holes, exposing the underlying iron and, consequently, contaminating everything with that metal.—*Canadian Pharm. Journ.*, August, 1871.

EXPERIMENTS MADE FOR THE PURPOSE OF PRESERVING RAW MEAT.

BY DR. BAUDET.

Since I had obtained, by a lengthy practice, some considerable experience as regards the antiseptic and preservative properties of a substance which I term *spyrol* (carbolic acid), for being applied to the tanning, tawing, and currying operations, I felt induced to try some experiments as regards the use of that body for the preservation of meat.

First process: *By immersion in phenic water at from 5-10,000 to 1-1,000.*—On the 18th of October last year I took four wide-mouthed stoppered bottles, and placed in each 250 grms. of raw horseflesh, slightly moistened with phenicated water in the following proportions:—No. 1, solution at 4-1,000; No. 2, solution at 3-1,000; No. 3, solution at 2-1,000; No. 4, solution at 1-1,000. To the contents of every bottle I added a few small pieces of well-burnt charcoal, with the view to absorb any gaseous matter which might be evolved from the meat; after having hermetically closed the bottles, I have kept these for thirteen weeks in a room constantly heated at from 15° to 20°. On inspecting the bottles after the lapse of time just mentioned, I found that the liquid which covers the meat had in all bottles become slightly rose-red colored. The state of the meat, on examining it, was found as follows: No. 1. The meat had become somewhat blackish-colored, but was not spoiled at all. No. 2. Meat very well preserved, color light rose-red. No. 3. Meat perfectly well kept, with the natural color of fresh meat. No. 4. Meat has quite well kept; its color has greatly improved considering that raw horseflesh is naturally deep-colored. A few days after, having inspected and noted down, as described, the contents of each bottle, I have taken a portion of the meat of No. 3 bottle, and, without having it washed or drained, have fried it, and dressed as a beefsteak; on partaking of it, in company with several other parties, we found the meat excellent, having only acquired a slight taste similar to that of cured ham and bacon, but by no means disagreeable. I have kept at the same temperature as indicated above, and under the same conditions, the meat in the bottles, well-closed, and have not observed, up to the middle of February last, any other change in the meat than an external drying and shrivelling up, and deeper color, but internally the natural color remains. From the foregoing experiments, I con-

clude that phenicated water, in the proportion of from 1-1,000 to even 5-10,000, might be applied to keep raw meat fresh and sweet, without imparting to it either any perceptible smell or taste, provided the meat be kept in well-closed vessels, be they casks, tinned iron canisters, or other vessels.

Second process: *By means of vegetable charcoal coarsely broken up, and saturated with phenicated water at from 5-10,000 to 1-1,000.*—This process is applied as follows: I cover the meat with a thin woven fabric, in order to avoid its direct contact with the charcoal, which might penetrate into the fibre of the meat, which is placed next into barrels, care being taken to place therein first a layer of the phenicated charcoal, then a layer of meat, and so on, alternately, until the barrel is quite filled, and all interstices properly taken up by the charcoal. As regards the importation of raw meat, preserved by this method, from South America, I would suggest that the meat, first covered with any thinly-woven fabric, be placed in bags made of raw caoutchouc, very abundantly obtainable in the country alluded to; so that the importation of raw meat and the importation of caoutchouc might go, as it were, hand in hand. The mode of filling in alternate layers of phenicated charcoal and meat would, of course, remain the same; and there would be no difficulty of hermetically sealing up bags made of caoutchouc, either by soldering the seams together, or by placing a cap of caoutchouc over the mouth of the bag, and soldering the cap on hermetically.—*The Drug. Circular and Chem. Gaz.*, August, 1871, from *Moniteur Scientifique*.

ON THE QUANTITATIVE ANALYSIS OF WHITE LEAD GROUND IN LINSEED OIL.

BY VICTOR BIART.

Text books on chemistry tell us very little about adulterations of paints. Take, for instance, white lead; how shall we proceed? If the druggist bought it in the state of powder, it would be relatively easy; but as it is generally sold ground in linseed oil, the case appears to be more complicated. If we refer to books, it will generally be with disappointment.

As an instance, I give what I found in a good book on chemistry, in the part of the work relating to chemical analysis, speaking of the analysis of white lead in oil, the author says: "When the white

lead is mixed with oil, it becomes more difficult to ascertain the exact nature of the adulterations, since the methods which must be adopted in order to destroy the oil, (viz. : incineration, or boiling with hydrochloric acid, and gradually adding chlorate of potassa), will alter to a greater extent the forms of combination in which the substances exist, and the analyst must content himself with merely identifying the different acids and bases ; the quantities of these will, however, guide him in his conclusions as to the really important adulteration. Probably by powerful pressure in blotting paper, between hot iron plates, the oil might be so far extracted as to allow of the application of the ordinary method of testing."

But such a process would be altogether too tedious, and I would suggest the following plan : If you have a sample of white lead ground in oil, and you wish to test it, it is not necessary to make a thoroughly accurate chemical analysis of it, all you want is the detection of one or more probable impurities, and these generally are sulphate of baryta, sulphate of lead, sulphate of lime, (plaster paris), and carbonate of lime, (chalk). The sulphate of baryta is almost universally employed in adulterating white lead ; in fact that is what it seems to be created for, and the manufacturer of white lead readily takes the advantage of the whiteness, the fineness, the weight, and, above all, the cheapness of sulphate of baryta ; all it lacks is the opacity, commonly termed the body, for it does not cover well.

The way to proceed then, is as follows : Take a small precipitating bottle, weigh it, and introduce in it a certain quantity of the white lead ground in oil. Then add about four times the quantity of ether, shake frequently till all oil is dissolved, decant and add another small quantity of ether, shake again, decant and repeat the operation till a few drops of the ether used will not stain a sheet of white paper on evaporating. Collect all the ether used, evaporate, and the oil is left as residue ; weigh it and calculate the percentage of oil in the white lead. Now warm the bottle with the dry white lead in it, so as to eliminate all the ether, then weigh it, and the difference of weight before and after digestion with ether must be equivalent to the amount of oil extracted.

To the powder obtained, add a little nitric acid diluted with three times its volume of pure water. White lead being a basic carbonate of lead, its carbonic acid will be expelled and nitrate of lead will be the compound in solution.

If no sediment remains, then only test for lime as follows: Add ammonia in excess, which precipitates the oxide of lead, then decant and add a solution of carbonate of potassa, which precipitates the lime if present. This is dried and weighed, and the amount of carbonate of lime it represents is calculated as follows:

$$28 : 50 :: \text{weight of precipitate} : x$$

$$x = \text{weight of chalk.}$$

Or the solution may be treated with oxalate of ammonia, which precipitates the lime as oxalate of lime; this may be converted into a carbonate by ignition and then weighed.

If, on the addition of diluted nitric acid, an insoluble residue is left, then this residue must be tested for the sulphates of baryta, of lead or of lime. Boil the residue with dilute hydrochloric acid; the sulphates of lead and of lime will be dissolved and the baryta left; this may then be dried and weighed. Precipitate the lead by adding ammonia and sulphide of ammonium, the sulphide of lead formed is treated with concentrated nitric acid, which converts it entirely into sulphate, and as such it may be weighed and directly determined. Lastly, the lime may be precipitated by oxalate of ammonia, ignited and converted into carbonate of lime, this is dried and weighed, and the amount of sulphate of lime it represents is calculated as follows;

$$50 : 68 :: \text{weight of ignited oxalate of lime} : x$$

$$x = \text{weight of sulphate of lime.}$$

—*Leavenworth Jour. Phar.*, August, 1871.

Varieties.

Sassafras Oil.—The manufacture of sassafras oil has been conducted for the past two years in Richmond, Va., on an extensive scale. The oil manufactured amounts to two per cent. of the stock used, 800 pounds of unrectified oil being made from 40,000 pounds of the root. This quantity is further reduced by rectification and cleansing from sediment and impurity. A gallon of the fine oil weighs 10 pounds, and about 40 gallons are produced every week. The root is first cut up fine by a chopping machine, and the raw materials are placed in a large tub, which is closed, and steam is then forced through the mass. The oil is then distilled by the ordinary process. It is largely used for scenting toilet soap, and for flavoring tobacco.—*Med. and Surg. Rep.*, Aug. 26, 1871.

The Preservation of Pepsin.—Dr. Lionel Beale writes to *Nature* to the effect that the means hitherto adopted for preparing pepsin for medical purposes are

clumsy and inefficient. Dr. Beale, however, claims one exception, a process described by himself in 1858. It simply consists in quickly drying the mucus expressed from the pig's stomach glands upon glass plates. The dried mucus is then powdered, and kept in stoppered bottles. It retains its properties for years. Eight-tenths of a grain will dissolve *one hundred grains* of coagulated white of egg. From this powder is easily prepared, by solution in distilled water, a perfectly clear and colorless digestive fluid of great activity, which *can be readily filtered*.—*Kans. City Med. Journ.*, Aug. 1871, from *Med. Press and Circular*.

Pill Mass of Ferri Sulph. and Potass. Carb. (see also pages 307 and 373 of this volume).—L. Crêteur proposes the following manipulation: 500 sulphate of iron and the same weight of carbonate of potassa are powdered separately, and then intimately mixed; a hot mixture of 100 clarified honey and 20 white wax is now added, the whole beaten to a pasty mass and set aside for 24 hours. To the brown-green soft mass a sufficient quantity of powdered marshmallow is added to form a pilular mass.—*Bull. de la Soc. Roy. de Ph. de Brux.* 1871, *Août*.

Manufacture of Phosphorus.—Professor Woehler, of Göttingen, proposed a long time ago to decompose phosphates by means of silicic acid and charcoal, but no practical application was made of the suggestion until recently. It is now applied in France on a large scale. The furnace is similar to the form used for the reduction of iron, and is fed at the tunnel head from a hopper with alternate layers of fuel and phosphates mixed with quartz and soda. The addition of soda facilitates operations as it produces a fusible double silicate which can be easily removed as slag. The vapor of phosphorus is driven by the blast through condensers placed near the top of the furnace, and the slag is drawn off at the hearth as in the blast furnace.—*Journ. Applied Chem.*, Sept., 1871.

Nickel Plating.—The process invented by Isaac Adams, of Boston, is pronounced by all experts to be the best. He employs a bath of a perfectly pure double salt of ammonio chloride or ammonio-sulphate of nickel. The presence of even slight traces of alkalies is said to be injurious, as they occasion the deposition of oxide of nickel. From pure salts the layers of metals are deposited with great regularity, and of sufficient thickness to admit of a fine polish. According to Jacobi, the nickel deposit succeeds much better if the anode be made of pure fused nickel, and Remington prefers to suspend pieces of metal in the bath. Nickel plating has now become an industry of great importance in the United States.—*Ibid*.

Artificial India Rubber.—Prof. Sonnenschein has discovered that an elastic mass resembling caoutchouc may be obtained by combining tungstate of soda with certain organic substances. If tungstic acid or tungstate of soda be added to glue, and afterwards muriatic acid, a compound of tungstic acid glue is precipitated, which is so elastic at 85° to 105° F. that it can be drawn out into very thin fibres. On cooling the mass becomes very solid and brittle. It

is proposed to employ this substance in place of the costly albumen for mordanting cotton, especially for aniline colors. The same substance has been used for tanning leather, which it makes as hard as stone. By adding tungstate of soda and muriatic acid to a solution of gelatine, and heating the precipitate, a substance is formed which may be used as a cement or putty.—*Chicago Druggists' Price Current*, Aug., 1871, from *Manufacturers' Review*.

Cinchona Plantations.—In a report of Mr. W. G. McIvor, the Superintendent of the Government Cinchona Plantations in British Sikkim, he says that the state of the plantations near Darjeeling is very unsatisfactory. The plants have not the luxuriant foliage of those grown in the south of India, and trees of equal height do not produce an equal amount of bark, the trees being of more slender growth and the bark thinner. The climate is very moist, being rarely free from rain, and seems admirably adapted for the growth of cinchona; but the trees appear to thrive for three years at most, and then to become diseased.—*Pharm. Journ. and Trans.*, Lond., Aug. 12, 1871.

Plants Killed by Frost : Do they Die in Freezing or in Thawing?—That in certain cases plants die in freezing, is shown by Prof. Gæppert, of Breslau, in a very satisfactory way, in an article in a recent number of *Bot. Zeitung*. The flowers of certain Orchids, notably the milk-white blossoms of *Calanthe veratrifolia*, produce indigo; but only upon a chemical reaction, which takes effect upon the death of the parts. When crushed, or the cells in any way destroyed as to vitality, they turn blue immediately. Now, upon exposure to cold, the flowers turn blue at once upon freezing, showing that life then departed. *Phaius grandiflorus* and another species of that genus, are said to show the same thing.—*Amer. Journ. Science and Arts*, Sept., 1871.

Pharmaceutical Colleges and Associations.

THE LECTURE SEASON has arrived, and all the teaching Colleges of Pharmacy will commence with their regular courses of lectures during the month of October. In the Philadelphia College of Pharmacy the opening lecture will be delivered by Professor E. Parrish, on the evening of October 2d.

THE NEW JERSEY PHARMACEUTICAL ASSOCIATION, at their last meeting, held on the 16th of August, at Long Branch, again considered the draft of a pharmaceutical law proposed by them for enactment in New Jersey, and referred it to a Committee, with the direction that they endeavor to obtain its passage at the next session of the Legislature.

THE LOUISVILLE COLLEGE OF PHARMACY, at the annual meeting, held August 8th, elected the following officers: President, C. Lewis Diehl; Vice-Presidents, B. F. Scribner, John Colgan; Recording Secretary, Fred. C. Miller; Corresponding Secretary, Emil Scheffer; Treasurer, S. Fisher Dawes; Curator, J. A.

McAfee. The Board of Trustees afterwards appointed Committees on charter, on progress of pharmacy, on drug market, on pharmacopœia, on unofficial formulas, on pharmaceutic legislation, on finance, on business, on room.

PHARMACY IN PITTSBURG.—Recently several members of the American Pharmaceutical Association, on their way to St. Louis, stopped at Pittsburg, with the view of visiting some of the large manufacturing establishments for which the Iron City is noted. A number of pharmacists and druggists of that city, having been apprised of this intended visit, very kindly took charge of the party—ladies and gentlemen—and showed them many places of interest. In the evening the entertainers and their guests met in a parlor of the Monongahela House for a friendly chat, and after discussing the aims of pharmaceutical societies, and the difficulty surrounding their establishment on a firm and lasting basis, the Pittsburg pharmacists present resolved to renew their endeavors made a year or two ago, to form a *Pharmaceutical Association of Allegheny County*, and for this purpose appointed Mr. McClarran, President *pro temp.*, and Mr. Abell Secretary *pro temp.* Judging from the gentlemen we had the pleasure of meeting, there is ample material of good quality in Pittsburg and its sister cities Allegheny and Birmingham, to form a good society; and when every individual will have learned to surrender an iota of his private interest for the weal of the profession, he will in a short time be amply repaid by the benefits which will accrue to every member of such a society after it has acquired solidity and strength. We bid our West Pennsylvanian friends a hearty *God speed*.

GENERAL AUSTRIAN APOTHECARIES' SOCIETY.—The annual meeting of this body, which was announced for Sept. 4th, was, on account of the election for the Legislature, postponed, and was held in the city of Linz on Sept. 17th, 18th and 19th.

Minutes of the Philadelphia College of Pharmacy.

A stated meeting of the Philadelphia College of Pharmacy was held at the College building September 25th, 1871. Dillwyn Parrish, President, in the chair. 21 members present.

The minutes of the last meeting, as also the minutes of the Board of Trustees, were read and approved.

The Committee on Deceased Members read the following biographical notice of our late member William Taylor:

William Taylor was a native of Lancaster, Pa., who came to Philadelphia about the year 1848, and entered the store of Edward Parrish, where he acquired a knowledge of the business, and graduated in the College in 1851.

He soon after purchased the drug store at the south-east corner of Ninth and Race streets, from which in a few years he removed to a new building at the north-east corner. There he continued to practice pharmacy until the time of his death, although occupying during two terms the office of Coroner of the city of Philadelphia. In his responsible official position, he was esteemed an honest and capable officer.

Acknowledgments of receipt of volumes of the American Journal of Pharmacy were received from the Smithsonian Institution, and Public Library of the City of Boston.

John M. Maisch read the following report from the delegates of this College to the meeting of the American Pharmaceutical Association :

To the College of Pharmacy, Philadelphia.

The delegates to the late meeting of the American Pharmaceutical Association respectfully report that the pharmacists and druggists of St. Louis had made ample preparations for the accommodation and entertainment of the members at this, the first meeting in their flourishing city.

The attendance was large. Seven new organizations were represented, 108 new members elected, and 12 reported as deceased.

Henry B. Brady, of Newcastle-on-Tyne, England, was present, accredited by a letter from the former President of the British Pharmaceutical Conference, and added much to the interest of the meeting by his participation in its proceedings. The number of reports and original papers was very considerable, and the meeting may be said to have been a most interesting and successful one.

The Conference of the delegates from the several Colleges of Pharmacy, which was established for the purpose of discussing the best methods of instruction, standards for graduation, &c., held one meeting and adopted a Constitution for a permanent organization, to meet annually. The proceedings of this organization are only advisory as affecting the several Colleges represented, but are designed to bring about an approach to uniformity in the granting of diplomas, and in the general management of our Schools of Instruction.

We would recommend the appointment of three delegates by the College, to represent it in this Conference.

(Signed)

JOHN M. MAISCH,
W. PROCTER, JR.,
E. PARRISH.

On motion of Caleb H. Needles, the Chair appointed Caleb H. Needles, Wm. C. Bakes, Saml. S. Bunting, Wm. Procter, Jr., and James T. Shinn, a Committee to confer on the subject of the closing of dispensing stores at 9 o'clock in the evening.

The Treasurer having reported the names of J. C. Griffith, Edwd. Donnelly, A. F. W. Neynaber, Wm. Ellis, Edw. Tomlinson and Chas. E. Rubincam in arrears, on motion, their names were directed to be dropped from the roll of members of the College.

Ambrose Smith offered his resignation as Treasurer of the College. On motion, his resignation was accepted.

In accepting the resignation of our late Treasurer, the members of the College direct the entry to be made on the minutes, of their sense of the faithful and zealous services which he has rendered during a term of twenty-one years. During this period there has been entailed on him more than usual labor, incidental to the erection of the new College building. On retiring from the Treasurership they tender to him their thanks for his services.

The following resolution, offered by Samuel F. Troth, was adopted :

Resolved. That a member be appointed, to be called the Recorder, whose duty it shall be to keep a register of members of the College, with date of election, resignation, decease, &c., also age at time of death, and a list of graduates, with the subject of their thesis, a list of donations to the College, and a

statistical statement of receipts and expenditures of each year, together with any other information the Recorder may think worthy of record.

Samuel F. Troth presented to the College a carefully compiled list of its members from the establishment of the College to the present time, giving the dates of their election, resignation and decease. On motion of Wm. J. Jenks, the Committee on Publication were directed to publish the list, under the supervision of S. F. Troth.

A Committee having been appointed by the Chair to offer the name of a suitable member to serve as Treasurer and one as Recorder, reported, after conference, the name of Samuel S. Bunting for Treasurer, and Samuel F. Troth for Recorder. They also suggested the name of Wm. C. Bakes to assist the Recorder.

Prof. Robert Bridges announced the commencement of the Course of Lectures for 1871-72, and extended an invitation to the members to attend the introductory, by Prof. Edwd. Parrish, on October 2d, at 7 P. M.

The Chairman of the Committee on the Sinking Fund made a verbal report of the funds in the hands of the Committee.

The semi-annual election being ordered, Daniel S. Jones and Wm. C. Bakes acting as Tellers reported the election as *Trustees* of Wilson H. Pile, M. D., Wm. J. Jenks, Edward Parrish, A. B. Taylor, Evan T. Ellis, Chas. Shivers, Wm. C. Bakes, and Ambrose Smith—(in place of H. M. Rittenhouse, who declined re-election).

Committee on Deceased Members.—Edward Parrish, Wm. Procter, Jr., Chas. Bullock.

Treasurer.—S. S. Bunting.

Recorder.—Saml. F. Troth, with Wm. C. Bakes to assist him.

Notice was given of the Pharmaceutical Meetings, which commence on the third Tuesday in October.

On motion, the retiring Treasurer, Ambrose Smith, was directed to pay to Saml. S. Bunting, Treasurer elected at this meeting, the amount of funds belonging to the College in his hands.

On motion, then adjourned.

CHARLES BULLOCK, *Secretary.*

Editorial Department.

THE NINETEENTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, lately held in St. Louis, Mo., of the doings of which we give a full account elsewhere, may be regarded as a very successful one. Though we missed the valuable counsel of several active members, who on this occasion were prevented from attending, the number in attendance was about 125, and, including the delegates, about 115 new members joined the Association. The papers read, numbering about fifty, are mostly practical, and we think contain many valuable facts and suggestions.

Aside from the attraction which St. Louis possessed for many of the visiting members, the success is in a great measure due to the exertions of the pharmacists and druggists of St. Louis, who labored assiduously through their Committees on ways and means, on arrangements, on hall, on railroads and hotels, on reception and on banquet.

On the evening of Sept. 12th, the local members and friends of the Association, with their ladies, met the visiting members and ladies in the spacious parlors of the Southern Hotel, where a general introduction took place. After partaking of a handsome collation, the company engaged in friendly conversation, and dispersed at a late hour.

The afternoon of Wednesday, the 13th, was especially devoted to the ladies of the visiting members, who were conducted by several ladies and gentlemen of St. Louis to the most prominent points of interest in the city and suburbs.

The evening of the 14th assembled all the members present, their ladies and many invited guests, again in the parlors of the Southern Hotel, where a band greeted them with choice music. The dining-hall had been handsomely decorated with flags, and the tables to which the company sat down to an excellent supper, were elegantly ornamented. Toasts were offered to "The American Pharmaceutical Association," "Pennsylvania, the Keystone State of the Union," "The State of New York," "The State of Massachusetts," "The State of Maryland," "The State of Ohio," "The State of Illinois and the City of Chicago," "Our Sister Societies," "The Press," which were acknowledged and responded to by Messrs. Maisch, Procter, Wright, Markoe, Moore, Judge, Sargent, H. B. Brady and J. S. Slade. Speeches were made by other gentlemen until the entertainment came to a close.

After the meeting had adjourned on Friday, the visiting members were conducted to the extensive vaults of the American Wine Company, to Lafayette and Tower Grove Parks, and to Shaw's Botanical Gardens. Returning from this excursion, most of the visitors left the same evening for their homes, or joined a party for a visit to the Mammoth Cave.

EXHIBITION AT THE MEETING OF THE ASSOCIATION.—Through the untiring efforts of Mr. Wm. H. Crawford, the Local Secretary for the past year, a large number of drugs, chemicals, &c., had been placed on exhibition, which took place in the spacious lecture-hall of the polytechnic building. The entire arrangement reflects credit on the good taste of the Manager. The exhibitors were quite numerous, most sections of the United States being represented, likewise England and Germany. A noticeable feature was the display of crude drugs, which were in greater number than at previous meetings. We have not space enough to even mention all articles on exhibition, and shall have to content ourselves with recording the character of the articles exhibited by the various firms.

Drugs.—J. L. Lemberger, of Lebanon, Pa.: an interesting collection of wild cherry bark, in pieces and in powder, gathered in each month of the year.

B. O. & G. C. Wilson, of Boston: indigenous herbs and flowers, in an excellent state of preservation, loose and pressed.

McKesson & Robbins, of New York: a large number of roots, indigenous and foreign, many of rare occurrence in our market.

Herring & Co., of London: scammony root, narcotic leaves, &c.

Richardson & Co., of St. Louis: various roots, barks, gums, &c.

Wm. H. Crawford: Mezquite gum and fruit from F. Kelteyer, San Antonio.

Pharmaceutical Preparations.—Fluid extracts, extracts, resins, tinctures, syrups, pills coated with sugar and gelatine, &c., were exhibited by Henry Thayer & Co., of Cambridge Mass.; Theod. Metcalf & Co., of Boston; Tilden & Co., of New Lebanon, N. Y.; McKesson & Robbins, of New York; Hance Bros. & White, of Philadelphia; Burrough & Bro., of Baltimore; W. J. M. Gordon, of Cincinnati; Enno Sander, Wm. H. Crawford, Meyer Bro. & Co., and Richardson & Co., of St. Louis; Herring & Co., of London.

Bullock and Crenshaw, of Philadelphia, exhibited a variety of sugar-coated pills; also J. R. Mercein, of Jersey City, samples of pills which were sugar-coated extemporaneously.

The exhibition of fine volatile oils, of their own manufacture, by C. W. Jones, of Centerville, Mich., E. Sachse & Co., and Heine & Co., of Leipsic, and some others, was particularly noteworthy.

Handsome specimens of castor oil and other fatty oils were exhibited by Woltman & Co., H. H. Gillum, and the St. Louis Oil and Lead Company.

Chemicals were numerous and well displayed by Powers & Weightman, and Rosengarten & Sons, of Philadelphia; Chas. T. White & Co., and Schering & Glatz, of New York; G. Mallinckrodt & Co., of St. Louis; F. C. Calvert & Co., Manchester. Handsome chemicals were also found among the collections of Th. Metcalf & Co., Wm. H. Crawford, Enno Sander, and several others.

Perfumery and Toilet Articles were specially displayed by Dimmitt, Hale & Co., of St. Louis, and were also found on the tables of several other exhibitors.

Chemical Apparatus.—Fine collections exhibited by Theod. Kalb, and by Greiner & Hecker, of St. Louis.

Soda Water Apparatus, by Chas. Lippincott, of Philadelphia; A. Van Winkle (model), and John Matthews, of New York.

Shop Furniture, Glass Labels, &c.—A fine display by Campion Bros. & Franklin, of Philadelphia; creditably executed glass signs and labels by F. Weissberger, of St. Louis.

Surgical Instruments, Trusses, Syringes, &c.—Codman & Shurtleff, of Boston; A. M. Leslie & Co., of St. Louis; Penfield & Co., of Philadelphia; P. Balbe & Bro., of St. Louis.

LOCAL SOCIETIES.—The influence of the national upon local pharmaceutical associations is very well illustrated by reference to the list of such societies represented at the annual meetings; not less than seven, instituted during the last year, had appointed delegates. The fostering of these local institutions is one of the happiest results of the migrations of the national association, and it seems to us that an ample, almost neglected field, which, however, promises an abundant harvest, will be found in nearly all the localities which were pro-

posed in St. Louis for holding the next annual meeting. From the shores of the Atlantic, where pharmaceutical colleges are in successful operation in the principal cities, and where State associations have been formed in at least two States, to those enterprising prairie cities, Chicago and St. Louis, there is a vast country, stretching a thousand miles from east to west, with a fertile soil and with thriving factories, with cities of fifty and even over a hundred thousand inhabitants. In that large territory, from the great lakes in the north, south to the Ohio River, there is hardly a single college of pharmacy or pharmaceutical society that has acquired sufficient solidity and shows a healthy vitality. It is likely, however, that the influence of the twentieth meeting of the national association will be felt north and west of the Allegheny Mountains in forming new local societies and infusing new light and vigor into those which may have existed before. "In Union there is strength."

GALANGAL.—As an addition to Mr. Hanbury's interesting historical notes on galangal published in the present number, we take occasion to state that this root is little known in American pharmacy, and perhaps never employed here in the regular practice of physicians. It is, however, frequently sold in various parts of the country by pedlers and travelling "medicine men," either as a cure-all, or by those, perhaps, less imbued with the spirit of charlatanry, under the less pretentious claim of a "sure cure" for dyspepsia, diarrhoea, headache or tooth-ache. During the last five or six years, we have repeatedly received samples from various parts of the country where it had been sold under the names of China, Indian and East India root, and probably under other names. Under the latter name it was lately offered in the streets in close proximity to several of our best Philadelphia wholesale drug houses, and sold at the rate of about 25 cents per oz., a moderate charge as compared with that exacted in some western localities, where 50 cents per oz. has been paid for it. This is at the rate of \$8 per pound, but the percentage of profit is sufficient to insure, with a tolerably extensive sale, a handsome income, and we question whether the celebrated cundurango, at \$100 per pound, affords the same percentage on the net cost.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Practical Therapeutics; considered chiefly with reference to articles of the *Materia Medica*. By Edward John Waring, M. D., F. L. S., &c. Second American, from the third London edition. Philadelphia: Lindsay & Blakiston, 1871. 8vo, 765 pages. Price, bound in cloth, \$5; in leather, \$6.

The author is well known to the medical profession, and his work, in its former edition, has been favorably received. The plan upon which the voluminous material has been arranged is exceedingly simple, and, for that reason, extremely useful to the busy practitioner. The work commences with an introduction, mainly devoted to the art of prescribing medicines, which is briefly considered in all its bearings. Part first, which follows, treats of "Articles of the Mate-

ria Medica," conveniently arranged in alphabetical order, with full descriptions of the medical properties and action, and the therapeutic uses of each drug. Part second speaks of "Medicinal Agents and Classes of Medicines," and is likewise arranged in alphabetical order. The book closes with an alphabetical index of diseases.

Every page of this manual gives evidence of the author's industry, his critical observation, and his familiarity with the current medical literature, the important facts of which are condensed so as to be at once available to the physician, who will be particularly pleased with the full accounts given of most of the new and even some of the rarest therapeutical agents, as, for instance, apomorphia, chloral, carbolic acid, cryptopia, peroxide of hydrogen, iodide of methyl, &c. If we have a suggestion to make, it is this, that an account of some of the American articles of *Materia Medica* would be welcome to the American practitioner, the most important ones of which have, however, received their full share of attention.

The medical student as well as the physician will find it a very useful work.

Headaches; their Causes and their Cure. By Henry G. Wright, M. D., M. R. C. S. L., L. S. A., &c. From the fourth London edition. Philadelphia: Lindsay & Blakiston, 1871. 12mo, 154 pages. Price, in cloth, \$1.25.

This little volume aims at imparting correct views of the varieties, symptoms, causes and treatment of headaches; and, while the practitioner will find in it many useful hints, suggestions and facts, every intelligent reader will derive special benefit from the perusal of its pages, inviting him to reflect on the causes of the headache which occasionally troubles him, and pointing out their avoidance. We consider this work of special value to the pharmacist, who is so frequently applied to to relieve headache; it will convince him, if he did not know it already, that headache is merely a symptom and not a disease, which, to be permanently relieved, requires often the careful observations of the physician. Pil. cathart. comp. and liq. magnes. citrat., though relieving some headaches, are not specifics for headache.

Report of the Executive Committees of the Apothecaries' Union of New York City and Suburbs, in relation to the Drug Law and the Legal Regulation of Pharmacy, &c. New York: "Journal of Applied Chemistry" Print, 1871.

We acknowledge the receipt of this report, which contains also an address by Dr. Fr. Hoffmann, giving a historical sketch of the efforts made by American pharmacists to obtain suitable legislation, and showing the absurdities and inconsistencies of the New York law. A draft of a proposed act is added, which is based upon the Rhode Island law, but has some other features which we may, perhaps, allude to hereafter.

Ueber die Wirkungen der Wasserluftpumpe, deren Anwendung beim Abdampfen, Kochen, Destilliren und Filtriren im Vacuum, sowie beim Trocknen von Kräutern und Krystallen. Von F. A. Wolff & Söhne, in Heilbronn.

On the effects of the water air-pump; its uses in evaporation, boiling, distilling

and filtering *in vacuo*; also for the drying of herbs and crystals. Reprint from *Neues Jahrbuch der Pharmacie*. 8vo, 20 pages.

The water air-pump of the authors differs in construction materially from the one described on page 401 of this journal. In a future number we shall endeavor to give the prominent points of the pamphlet before us.

The Physician's Prescription-Book; containing lists of the terms, phrases, contractions, and abbreviations, used in prescriptions, with explanatory notes; the grammatical construction of prescriptions; rules for the pronunciation of pharmaceutical terms; a prosodiacal vocabulary of the names of drugs, &c.; and a series of abbreviated prescriptions illustrating the use of the preceding terms; to which is added a key, containing the prescriptions in an unabbreviated form, with a literal translation, for the use of medical and pharmaceutical students. By Jonathan Pereira, M.D., F.R.S. Fifteenth edition. Philadelphia: Lindsay & Blakiston, 1871. 16mo, 286 pages. Price, in cloth, \$1.25; in leather, with tucks and pocket, \$1.50.

This little work of the celebrated author is too well known, and its usefulness being proven by the numerous editions through which it has passed in England and in this country, we merely call attention to the present handsome edition.

Transactions of the Minnesota State Medical Society. St. Paul Pioneer Printing Company, 1871. 8vo, 63 pages.

The receipt of this pamphlet is acknowledged.

The Canadian Journal of Pharmacy. Toronto, Ontario.

This monthly, of which Mr. E. B. Shuttleworth is the able and zealous editor, comes to us in an entirely new dress, and is thereby much improved in appearance.

OBITUARY.

PROF. ROBERT BENTLEY.—During the late meeting of the American Pharmaceutical Association in St. Louis, a cable dispatch announced the death of this zealous laborer in the cause of science. The intelligence cast a gloom over the members who knew him by reputation or personally, and the sad event was feelingly alluded to by Mr. Henry B. Brady, a personal friend of the deceased. In the next number we shall lay before the readers a biographical sketch of the deceased.

WILHELM RITTER VON HAIDINGER, a celebrated mineralogist and geologist, died in March last, at Vienna, Austria.

THE

AMERICAN JOURNAL OF PHARMACY.

NOVEMBER, 1871.

ON THE RELATIONS OF THE SEVERAL CLASSES OF DRUGGISTS AND PHARMACISTS TO THE COLLEGES OF PHARMACY*.

BY PROFESSOR E. PARRISH.

The tendency to a division of labor which is seen in the growth of every branch of business, has developed in ours a variety of different occupations. Fifty years ago, when this college was established, almost every considerable drug store had something like a laboratory attached, where some of the few chemicals then in use and all the galenical preparations were made, and where nearly all the crude drugs were assorted, garbled and powdered.

The apprentice enjoyed a wholesome development of muscle through wielding the ponderous pestle, handling the sieves and working the screw press. He learned how to make pills by wholesale, to prepare great jars of extracts and cerates, to bottle castor oil, Turlington's balsam and opodeldoc by the gross, and what he lacked in the number and variety of articles he dealt in, was made up by the greater extent of his operations and the completeness with which, in a single establishment, all the then known processes were practiced. Very many physicians then dispensed their own prescriptions, drawing their supplies from the druggists, but gradually, as the obvious advantages of separating dispensing from prescribing began to be recognized, the separate prescription counter was added to the drug

* Extracted from the Introductory Lecture to the 50th course in the Philadelphia College of Pharmacy.)

store, and in many instances the hands that received and opened the case of rhubarb, opium or assafœtida fresh from off the ship, in turn dispensed these remedies in pill-box or vial to the suffering invalid.

Gradually, as all this has changed, the retail prescription, or as we now call them, dispensing stores became numerous, and the wholesale druggists, glad to lop off the petty details of their retail counters, have ceased to supply the public directly with those small quantities which make up the sum of the retail business.

This state of things is not without many exceptions; even in large cities there are wholesale stores in which the supply of medicines to physicians and retailers is joined with the practice of retailing and even with the compounding of prescriptions, and, as we all know, the distinction becomes less and less, till we reach the class of stores in which the sale of medicines is joined with that of paints and oils, books, hardware or general merchandize, and in which the prescription counter is introduced or omitted, according as the neighboring physicians may or may not have created a demand for it.

The division of labor having given rise to separate wholesale and dispensing stores does not stop here, but the wholesale dealers are subdivided into importers, brokers and jobbers. The importation of heavy and costly drugs employs large capital and calls into activity talent of the first order; it is often conjoined with the jobbing business, but the tendency is to separate it into a distinct pursuit, and indeed to subdivide it among different classes, each selecting a particular line or sometimes even a special article as sufficient to employ the attention and capital of a single house.

The business of the broker is to familiarize himself with the various sources of supply, and to facilitate the distribution of the leading articles among manufacturers and wholesale druggists—a useful and indispensable class in the large cities on the seaboard; they are no doubt heard of for the first time as a class of druggists by many who hear me.

Wholesale druggists or jobbers open the original packages, assort and garble the drugs, and have them reduced to powder or otherwise prepared for the purposes of the retailers, for whom they collect and furnish the vast variety of merchandize for which the public resort to the dispensing store. The modern druggist does not, however, as did his predecessor of the olden time, require to have his own laboratory, he resorts to numerous manufacturers and tradesmen, who have

branched off from his business in its rapid development. Drug brokers wait on him daily with samples of the latest importations; commission houses and herbalists have collected for him the indigenous drugs, tons of which are on storage awaiting a market at home or abroad; manufacturing chemists offer lists which would have astonished the druggist of the last century; manufacturing pharmacists, who are of many kinds, offer extracts, fluid extracts, syrups, elixirs, cordials, pills—plain and sugar-coated, plasters—spread and unspread, perforated and entire, on skins, on cloth, on paper and on silk. The confectioners furnish medicated lozenges, the perfumers offer pomades, essences and colognes; the soap makers a vast variety of plain, scented and medicated soaps.

The dealer and manufacturer are divorced; each follows his own appropriate sphere, and the development of the business is correspondingly great.

Steam has revolutionized pharmacy as it has most other manufacturing pursuits. The pestle and mortar have given way, in powdering, to chasers and mill stones; the steam boiler and jacket have driven out the furnace, digester and still which erst garnished the laboratory of the roomy old drug store, while pharmacy, cramped into a narrow corner shop, where it may meet the people face to face over the dispensing counter, is compelled to stretch its long arms into store-houses, laboratories and factories not a few.

This brief sketch of the subdivisions of "the drug and apothecary business," as it is designated in our diploma, has opened the way for a few remarks on the relations of these subdivisions to the colleges of pharmacy. These colleges, in so far as they are educational in their objects, are designed to fit a corps of young men annually for the varied duties connected with the business of selecting, preparing, and dispensing medicines and the allied substances used in the arts and domestic economy.

I have shown that the druggist, the manufacturing chemist and the pharmacist, with the aid of numerous allies, are all concerned in this business, and, it would appear that they are all under the necessity of scientific instruction to fit them for it.

The lectures on *Materia Medica*, though indispensable to all these, may be considered especially applicable to the druggist, making him acquainted with the varieties, sensible properties, adulterations and sophistications of drugs and their natural history and commercial re-

lations. Standard specimens are exhibited, their modes of preservation and uses described, and a scientific and practical interest imparted to them which cannot fail to make of the student a more intelligent, appreciative and competent dealer in them.

The chemical course, though most obviously useful to the manufacturing chemist and pharmacist, has a practical interest to the druggist also; in fact the leading principles of this science are so interwoven with every branch of trade and manufactures as to have been incorporated into most general schemes of liberal education. The druggist needs chemistry especially, to open to his view the composition and properties of drugs, and to place within his reach the means of testing their purity and of judging of their quality.

Nor are the lectures on pharmacy, though especially adapted to the manufacturing and dispensing pharmacist, without real utility and importance to the druggist. To judge of the identity, excellence or inferiority of pharmaceutical preparations in which he deals requires knowledge which is closely connected with the processes by which they are made; these processes, too, are very liable to come into use in the course of his business, and the few preparations he has occasion to make will call for scarcely less skill than is demanded in the manufacturing laboratory and dispensing store. Moreover the close relations of all these classes as coadjutors in the general drug trade, make it eminently fitting that their scientific training should be substantially the same.

Yet granting that our colleges should be open to all, the question still remains as to who should be entitled to compete for their honors. By the time-honored regulations of this college the line has been drawn so as to exclude those whose practical training embraces one special department only. No importer, drug broker, drug miller, herbalist or perfumer, who is not at the same time a practicing druggist or pharmacist, would lay claim to send an apprentice here with a view to obtain a diploma; yet we have never drawn a distinction between the jobber and retailer, who we regard as jointly participants in the general traffic in drugs and medicines.

Many of the members of this college, including some of its founders, have originally been wholesale dealers. Some of its leading members, starting as apothecaries, have extended their trade with the growth of the city and the natural increase of their capital, till they have become large importers, jobbers or manufacturers, and yet these are

completely identified with our profession, and naturally desire to introduce their sons and the young men under their care into the places which they have filled, through the channels which the college opens.
 continued.)

ON SYRUP OF SENNA.

BY J. B. MOORE.

This syrup, which was officinal in the U. S. P. of 1850, was omitted in that of 1860, the authors, perhaps, thinking that its place might be supplied by the fluid extract; but, as the syrup has been so long known and used, not only in professional but also in domestic practice, there still exists for it a lingering demand, which is likely to continue. To supply this demand the pharmacist is compelled to keep the syrup constantly on hand; and, as the formula of the U. S. Pharmacopœia of 1850 yielded rather an uncertain preparation, which was very liable to spoil if long kept, I thought I would offer a formula for its preparation which I have used for several years, and which will afford a reliable and permanent syrup. As an evidence of this, I have samples of it which have kept for nearly three years unaltered. The demand for the syrup in some localities being limited, and the fact of its being an unstable preparation as made by the late officinal formula, some pharmacists have been led to the habit of making it, in small quantities, as needed, from the fluid extract; but this practice should not be encouraged, and it is only when the pharmacist makes correctly his own fluid extract, and is sure of its reliable quality, that this mode of preparing the syrup should ever be employed.

The following is the process which I have adopted:

R. Pulv. Sennæ, No. 60,	℥ij troy,
“ Fœniculi, No. 60,	℥j “
Sacchar. alb., sifted,	℥ix “
Glycerinæ,	f℥iv “
Alcohol. dil.,	sufficient quantity.

Mix the powders, and, having moistened the mixture with dil. alcohol, pack it firmly in a glass funnel prepared for percolation, and gradually pour diluted alcohol upon it until sixteen fluidounces are obtained, or until the mixture is exhausted. Set aside in a shallow dish, in a warm place, the first four fluidounces which pass, to evapo-

rate spontaneously to two fluidounces. To the remainder of the percolate add the sugar, and evaporate it in a water-bath, at a temperature not exceeding 160°, with frequent stirring, until the whole measures, when cold, ten fluidounces. To this add the glycerin and reserved portion, mix well, and strain through muslin.

If the percolation is managed with care, the reserved percolate will contain at least four-fifths of the active properties of the senna and the aromatic qualities of the fennel. This, then, being evaporated spontaneously, and the remaining portion protected by the sugar from the injurious effects of the atmosphere during the concentration, furnishes a syrup embodying the virtues of the senna and fennel unimpaired.

One serious objection to the process of the U. S. P., 1850, was the prolonged exposure to heat necessary to reduce the syrup to the "proper consistence," during which a great portion of the volatile oil of the fennel must have been dissipated, and the purgative properties of the senna in a measure diminished, while at the same time its griping tendency was promoted.

This same objection applies with double force to the present British process, presented in the last edition of the U. S. D. In that process about one hundred fluidounces of infusion are directed to be reduced, by evaporation, to ten fluidounces. It can well be imagined what influence this torture, as it were, would exert upon the medicinal properties of the senna, if they are at all vulnerable to the effects either of heat or atmospheric oxygen.

Another very objectionable feature of the British syrup is that of its strength, which is about four times as great as that of the U. S. P., 1850. Upon this point, Dr. Wood, in his comments upon the process in the U. S. Dispensatory, very properly makes the following remarks: "The present British syrup, which has superseded the former syrups of the London and Edinburgh colleges, differs from them, as well as from that of the U. S. Pharmacopœia of 1850, very greatly in strength, so that in prescribing it physicians accustomed to the doses of the former syrups must be on their guard not very seriously to overdose their patients." These remarks are equally applicable to its use in domestic practice; and, since it is chiefly given to children, its administration in excessive doses might be attended by mischievous results.

As the British process is the only one that the late edition of the U. S. Dispensatory offers to American pharmacists for their guide in the preparation of this syrup, and as it has an established reputation, they are obliged to keep it in stock, I think it highly important that it should be reinstated in the next edition of our Pharmacopœia, and a good working formula given, which will yield a reliable and at the same time a *permanent* preparation, corresponding in strength with that of the U. S. P., 1850.

The proportions of senna and fennel, in the formula given above, correspond precisely with those of the formula of our late Pharmacopœia; but in the latter process the volatile oil of the fennel was only partially extracted by the aqueous menstruum, and a portion even of that must have afterwards been lost in the evaporation of the syrup. This, therefore, necessitated the employment of a large excess of the fennel.

Now, since in the process proposed by me the aromatic properties of the latter are entirely extracted, and there is but slight if any loss by subsequent evaporation, I think that the quantity of the fennel might with propriety be reduced one-half, and still be sufficient to answer all purposes for which the aromatic is employed, without in the least impairing the virtues of the syrup.

It will be observed that in the above formula I have employed diluted alcohol as the menstruum in the place of water, which has heretofore been exclusively used. This has not been done unadvisedly, but from a strong conviction that the alcoholic menstruum possesses superior advantages over that of the aqueous one; for, by means of it there is obtained directly, by the process of percolation, a more highly concentrated solution, obviating the long and tedious application of heat necessary to reduce the aqueous solution to a proper strength, thus more than counterbalancing whatever advantages, if any, therapeutically, the aqueous may have been supposed to possess over the spirituous solvent.

It has doubtless been owing to the tedious and inefficient methods heretofore in vogue in the manufacture of this syrup, that has led to the discarding of its formula from our Pharmacopœia, and to its partial disuse in professional practice. It is certainly, however, when properly prepared, an efficient, useful and convenient preparation for children, for whom it was originally intended; and, if a reliable and satisfactory formula, such as we present, should be adopted in its

manufacture, its restoration to its former place in professional favor would doubtless follow.

Philadelphia, September, 1871.

ON THE PREPARATION OF SUPPOSITORIES.

BY ROBERT F. FAIRTHORNE.

Having noticed in the journals recently quite a number of articles on the above mentioned subject, and finding that the experience of the writers differs from mine in some respects, I thought that I would add to the general fund by giving the method which is employed in Mr. Shinn's store for preparing suppositories. The following plan has proved satisfactory in every respect:

The moulds (made of white metal and of the usual form) are suspended in ice water by means of a perforated tray, which is supported on the surface of the water. These are placed in the water a minute or two before using, so as to become thoroughly chilled, thereby preventing the suppositories from sticking.

The requisite quantity of butter of cacao having been weighed, is cut into thin slices by means of a knife. If an extract or other substance, soluble in water, is employed as the medicating ingredient, it is rubbed up with a small quantity of that liquid and reduced to the consistence of syrup. When this is accomplished, mix it with all the butter of cacao by trituration. Transfer the mixture to a capsule and heat it over a spirit lamp, constantly stirring with a spatula. When it is scarcely melted and about as thick as cream, pour into the moulds. So much heat should not be applied as thoroughly to melt the butter, but only just sufficient to render it thin enough to pour.

The suppositories must be allowed to remain at least fifteen minutes in the moulds surrounded by ice water, after which they may easily be removed by tapping the mould on the counter. They will be found when thus made to be hard and smooth. They keep well for several months, and if placed in a moderately cool place, such as a cellar, will remain unchanged even in the hottest weather.

The several points deserving special attention are, that butter of cacao alone will produce suppositories sufficiently hard for the purposes to which they are applied (except when camphor or other essential oil is introduced as the medicating ingredient, in which case the addition of a little wax or spermaceti is necessary), that the ex-

tract or other substance used is, by this process, first uniformly disseminated through the butter of cacao whilst cold, that substance being reduced to powder by trituration; that the cacao butter, &c., are kept constantly stirred when being heated, and that the mixture is only reduced to the consistence of cream by carefully regulating the amount of heat applied, so as to avoid the danger of deposition of extract, which always occurs when it becomes too thin from the use of too much heat.

TINCTURA OPII (U.S.P.)

By H. TREVERTON BOND, M. D.

The following is a quick method of preparing tinctura opii, thoroughly exhausting the opium; the resulting product is of official strength.

R. Powdered opium; two and one-half troyounces.

Triturate in a mortar with one pint of boiling water gradually added, then add one pint of alcohol, shake thoroughly and filter; the opium left on the filter will be properly packed for percolation with the filtered liquid, which is the next step, adding sufficient water to the dregs to displace any remaining portion, until two pints of tincture are obtained.

Philada., Oct. 17th, 1871.

WATER—MUDDY, CLEAR, DISTILLED.

By H. M. WILDER.

Editor of the American Journal of Pharmacy:

DEAR SIR,—I think that the following will be of use to some of your readers, particularly to those who have to depend on more or less muddy streams for their water supply, and who are not provided with a filtering apparatus, which, of course, is less expensive and obnoxious.

To clear muddy water I boil it with magnes. carbon. (1 tablespoonful to one or two gallons, according to its turbidity), and filter *hot*, magn. carbon. being much less soluble in boiling water (1:9000) than in cold (1:2500).

The only objection to the above is, a little dissolved carbon. of magnes. is not valid so long as the U. S. P. permits medicated waters to be prepared by means of it. As several salts and alkaloids are precipi-

tated by it, it has been proposed to neutralize the water with a few drops of a diluted acid.

To eye-waters only distilled water ought to be taken, which it is not difficult to obtain in towns containing chemical manufactories.

An excellent substitute for distilled water has been recommended by the late Prof. F. F. Mayer, of New York, in *Am. J. Pharm.*, xxxii, 172: Put a *clear* piece of ice in a filter, and let it melt.

Philadelphia, Sept. 24th, 1871.

THE ACTIVE PRINCIPLE OF POLYGONUM HYDROPIPER.

By C. J. RADEMAKER, M.D.

Having seen hydropiper frequently used, both in the form of tincture and fluid extract in amenorrhœa and other uterine disorders, with very satisfactory results, I was induced to make a chemical examination of this drug.

In order to obtain the active principle or principles the following processes were resorted to:

Experiment 1st.—Two pounds of the herb were exhausted with diluted alcohol, the alcohol distilled off by means of a water-bath, the remaining liquid was evaporated to about one-third of the original bulk; during the evaporation a considerable amount of resinous matter was precipitated, the solution was filtered from the resinous precipitate and the filtrate treated with basic acetate of lead, which produced a yellow precipitate.

The precipitate produced was collected on a filter and washed with distilled water. The precipitated magma was then suspended in distilled water and treated with sulphuretted hydrogen; the resulting mixture of sulphide of lead and organic principle was treated with ether, the ether separated from the sulphide of lead and allowed to evaporate spontaneously.

The crystals thus formed were soluble in alcohol, ether, chloroform, and slightly soluble in diluted alcohol, but almost insoluble in water; when rubbed with water they become very sticky; the solution of the crystals had an acid re-action with litmus. Under the microscope they made a beautiful appearance, resembling the crystals of uric acid of human urine.

This acid may be called polygonic acid.

Experiment 2d.—The filtrate from which the acid had been re-

moved by means of basic acetate of lead, was treated with sulphuric acid, in order to remove the excess of lead, and then rendered alkaline by means of caustic potash and treated with ether.

The ether was separated and allowed to evaporate spontaneously. The mass thus left was perfectly white, neutral to test-paper, and had a bitter taste, was soluble in alcohol, ether, and the mineral acids; its solution in acids was not precipitated by ammonia, caustic potash, or sodic carbonate, nor was I able to obtain any crystals. From this I concluded that it possessed no basic properties.

Experiment 3d.—One pound of fluid extract (480 grs. to the fluid-ounce) was treated with hydrochloric acid, about five drops of the acid to each fluid-ounce of the liquids, and then treated with ether. The ether separated and treated with basic acetate of lead, the precipitate produced was collected on a filter and washed with distilled water, the precipitated magma was suspended in distilled water and treated with sulphuretted hydrogen.

The mixture of sulphide of lead and organic principle was again treated with ether, the ether separated from the sulphide of lead, evaporated and the acid crystallized.

The crystals produced resembled those as prepared in experiment No. 1.

Chemical properties of Polygonic Acid. Polygonic acid, as prepared in experiments 1 and 3, has a green color, acrid, and bitter taste. It has strong acid properties, completely neutralizing bases, and uniting with them to form salts.

Aqua ammoniæ, caustic potash and sodic carbonate, added to the crystals or a solution of the crystals, produced an intense yellow color, and the crystals were dissolved. Nitric and hydrochloric acids added to crystals or solution of the acid produced a yellow color. Sulphuric acid added to the crystals or a solution of polygonic acid, produced a dark red color, which gradually became black. Basic acetate of lead added to a solution of the acid or its salts, produced a yellow precipitate, soluble in the mineral acids. Nitrate of suboxide of mercury produced a yellowish white precipitate, soluble in the mineral acids. Mercuric chloride produced a green precipitate, soluble in the mineral acids. Cyanide of potassium produced a yellow color. Ferric chloride produced a slight dark color. Cupric sulphate produced a slight green color. Baric chloride, chloride of gold, nitrate of silver and chloride of platinum produced no change.

From the above it will be seen that polygonum hydropiper contains an acid, crystallizable, coloring principle upon which the medicinal virtues of the drug mainly depend.

NOTES ON CARBOLIC ACID.

BY WILLIAM C. BAKES.

Few substances have acquired greater popularity, and given such general satisfaction as carbolic acid. For a long time it was exclusively used by the medical profession, but the public having heard of its antiseptic and disinfectant properties have adopted it in various forms as one of their household requisites.

Its use as a remedial agent dates from 1859, when M. Le Beuf, of Bayonne, France, employed the then crude carbolic acid in the form of a saponaceous emulsion. He assisted in the work of M. Lemaire, of Paris, who has made it the foundation of a laborious research. The two investigators sent to the Academy of Medicine a paper on the value of the emulsion as an application to gangrenous ulcers. M. Lemaire continued his investigation, and published an elaborate treatise in 1863, in which he narrated a series of experiments in which carbolic acid was employed as a means for the destruction of low forms of animal and vegetable life, as a preventative of fermentation and putrefaction, as an external application in cases of ulcerating and suppurating surfaces, as well as an internal remedy in zymotic and other diseases. While carbolic acid was attracting attention as a disinfecting agent, experiments were being made as to its use in the arts. Laurent, in 1841, after a series of investigations, produced picric acid by the action of nitric acid upon carbolic acid. Picric acid is used as a yellow dye, and from it are derived picramic acid and isopurpurate of ammonium, yielding rich brown and garnet hues.

In 1865 Professor Lister began the use of carbolic acid in surgical cases attended with suppuration, and gave the result of his investigations in several communications to the "*Lancet*," in the March and July numbers of 1867.

To the pharmacist the preparations of carbolic acid are of some interest, and demands are often made for the various combinations without any definite formula.

A valuable work of 356 pages has recently been published, enti-

tled "The Antiseptic System—a Treatise on Carbolic Acid and its Compounds, etc.," by A. E. Sansom, M. D., of London, which contains much useful information, relating not only to the chemistry of carbolic acid, but to its general employment in medicine. In the appendix a series of formulæ are given as follows:

1. *Liquefied Carbolic Acid*.—A. Calvert's purest (No. 1) acid, liquefied by placing the bottle containing it in hot water, 9 parts; water, 1 part. Mix well.—*Calvert*.

B. Pure carbolic acid, 15 parts; alcohol, 1 part. Mix well. This keeps fluid at all ordinary temperatures.—*Author*.

For many purposes, especially for dispensing, it is convenient to keep the acid in a liquid form; otherwise the crystals must be melted by heat each time that the acid is employed.

2. *Solution of Carbolic Acid in Water*.—To obtain uniform solution, it is better to slake the carbolic acid with four times its bulk of hot water, and then to add a sufficiency of cold water; or, the carbolic acid may be first mingled with alcohol, which causes more ready solubility, before the addition of cold water. Water will not dissolve more than one-twentieth of its bulk of carbolic acid.

3. *Alcoholized Carbolic Acid* (Acide Phénique Alcoolisé).—Alcohol (90°), crystallized carbolic acid, equal parts. Mix, and keep in a well-stoppered bottle. Used for making carbolized solutions, &c. Being more fluid than carbolic acid, it more readily penetrates the tissues. Useful in poisoned wounds, for application to small-pox pustules, &c.—*Lemaire*.

4. *Etherized Carbolic Acid* (Ether Phéniqué).—Sulphuric ether, 100 parts; carbolic acid, 1 part. Used for insufflation in catarrh of Eustachian tube.—*Lemaire*.

5. *Carbolized Vinegar* (Vinaigre Phéniqué).—Ordinary vinegar, 4 parts; carbolic acid, 1 part. Mix. For use, instead of aromatic vinegar, as a disinfectant, &c.—*Quesneville*.

6. *Glycerinum Acidi Carbolici*.—Carbolic acid, 1 ounce; glycerin, 4 fluidounces. Rub them together in a mortar until the acid is dissolved.—*British Pharmacopœia*.

7. *Carbolized Glycerin* (Glycerin Phéniquée).—Pure glycerin, 100 parts; carbolic acid, 1 part. Mix. For impetigo, chronic eczema, lichen, prurigo and pemphigus.—*Lemaire*.

8. *Syrup of Carbolic Acid* (Sirop d'Acide Phénique).—Simple syrup, 100 parts; carbolic acid, crystallized, 1 part. Mix.—*Chaumelle*.

9. *Carbolic Acid Liniment*.—For counter irritation.

A. Alcohol, 50 parts; carbolic acid, 1 part. Mix.—*Lemaire*.

B. Olive oil, 7 parts; carbolic acid, 1 part. Mix.—*Author*.

10. *Compound Disinfectant Solution*.—Water, 1000 parts; carbolic acid, 10 parts; sulphate of zinc, or sulphate of iron, 3 parts. Mix. Carbolic acid has no chemical action on sulphuretted hydrogen, or carbonate of ammonium. When it is employed alone as a disinfectant, deodorization does not take place till the gases have disappeared by diffusion. The sulphates change the sulphuretted hydrogen into sulphides, and the carbonate of ammonium into metallic carbonate and ammonium sulphate—all inodorous compounds.—*Lemaire*.

11. *The Süvern Deodorant*.—Good quick lime, $1\frac{1}{2}$ bushels, put in a cask, slaked, and well stirred; coal tar, 10 lbs. Mix thoroughly; then add magnesium chloride, 15 lbs., dissolved in hot water. Mix again, and add hot water until the mass is liquid enough to drop slowly from a stick plunged into it and then withdrawn. The magnesium chloride forms deliquescent calcium chloride. Magnesia being liberated, this prevents caking and adherence to pipes, which is a defect when lime alone is used.—*Parkes*.

12. *Carbolized Earth* (Terre Coaltarée).—Common loam, passed through a sieve, 100 parts; coal tar, 2 parts. Mix intimately. Disinfectant for crops, and for destruction of noxious insects.—*Lemaire*.

13. *Solution of Carbolic Acid for the Toilette*.—Crystallized carbolic acid, 10 parts; essence of millefleur, 1 part; tincture of quillaya saponaria, 50 parts; water, 1000 parts. Mix. The saponine replaces soap with advantage. The above should be employed, diluted with ten times its bulk of water, for disinfecting the skin, for washing the hands after any risk of contagion or inoculation, &c.—*Lemaire*.

14. *Tincture of Saponine*, as used in the foregoing preparation, is

thus made: Bark of "*Quillaya saponaria*," 1 part; alcohol (90°), 4 parts. Heat to ebullition, and filter.—*Le Beuf*.

15. *Carbolized Water for the Teeth*.—Water, 1000 parts; essence of meat, 2 parts; tincture of saponine, 50 parts; pure carbolic acid, 10 parts. Mix. A dessertspoonful in a quarter of a tumblerful of water, serves as an excellent preparation for cleansing and preserving the teeth.

16. *Carbolized Ointment*.—Purified lard, 100 parts; carbolic acid, 1 part. Mix. Considered of some service in skin affections; but, modified as it is by the fat, it cannot replace the aqueous solution of carbolic acid.—*Lemaire*.

17. *Carbolized Amylaceous Ointment*.—Pure starch, 3 parts; hot water, 20 parts. Mix, in the ordinary way (the starch being made first into a paste with cold water, and then hot water added), to a stiff consistence; then add olive oil 1 part, glycerin 3 parts, carbolic acid 1 part, and thoroughly mix in a mortar. When cool this is a soft jelly, which can easily be applied as ordinary ointment. It is much more efficacious than one the basis of which is entirely fat, and it is an agreeably cool application.—*Author*.

18. *Carbolized Oil*.—A. Crystallized carbolic acid, 1 part; boiled linseed oil, 4 parts. Dissolve.—*Lister*.

B. Pure carbolic acid, 1 part; olive oil, 6 parts. Olive oil is better than linseed oil as a vehicle, as the latter is more prone to oxidation.—*Calvert*.

19. *Carbolized Putty*.—Carbolized oil, about 6 tablespoonfuls; common whiting (chalk), sufficient to make a firm paste.—*Lister*.

20. *Antiseptic Lead Plaster*.—Olive oil, 12 parts (by measure); litharge (finely ground), 12 parts (by weight); beeswax, 3 parts (by weight); crystallized carbolic acid, $2\frac{1}{2}$ parts (by weight). Heat half the olive oil over a slow fire; then add the litharge gradually, stirring continually until the mass becomes thick, or a little stiff; then add the other half of the oil, stirring, as before, till it becomes thick again. Then add the wax gradually till the liquid again thickens. Remove from the fire and add the acid, stirring briskly till thoroughly mixed. Cover up close, and set aside to allow all the residual

litharge to settle; then pour off the fluid, and spread upon calico to the proper thickness. The plaster made in this way can be spread by machine and kept rolled in stock, and if in a well-fitting tin canister, will retain its virtues for any length of time.—*Lister*.

21. *Antiseptic Lac Plaster*.—Shellac, 3 parts; crystallized carbolic acid, 1 part. Heat the lac with about one-third of the carbolic acid over a slow fire till the lac is completely melted; then remove from the fire and add the remainder of the acid, and stir briskly till the ingredients are thoroughly mixed. Strain through muslin, and pour into the machine for spreading plaster, and when the liquid has thickened by cooling to a degree ascertained by experience, spread to the thickness of about one-fiftieth of an inch.

Afterwards, brush over the surface of the plaster lightly with a solution of gutta percha in about 30 parts of bisulphide of carbon. When the sulphide has all evaporated, the plaster may be piled in suitable lengths in a tin box, without adhering, or rolled up and kept in a canister.—*Lister*.

22. *Antiseptic Cere-Cloth*.—Cloth or thin calico is saturated with cerate (made after the following formula), by simply drawing a portion through it while in a fluid state, or in pieces of any length and width, by rolling, by means of a machine, the calico over cylinders containing cold water, as fast as it has taken up the cerate.

A. Strongest Cerate.—Calvert's pure carbolic acid, liquefied, 3 fluidounces; olive oil (colored red with alkannet root to distinguish the cerate), $1\frac{1}{2}$ fluidounces; yellow wax, liquefied, $1\frac{1}{2}$ fluidounces; paraffin, liquefied, 6 fluidounces. Mix.

B. Medium Strength.—Pure carbolic acid, 2 fluidounces; olive oil, $2\frac{1}{2}$ fluidounces; yellow wax, $2\frac{1}{2}$ fluidounces; paraffin, 5 fluidounces.—Mix.

C. Weakest.—Pure carbolic acid, $1\frac{1}{2}$ fluidounce; olive oil, 1 fluidounce and 6 drachms; white wax, 1 fluidounce and 6 drachms; paraffin, 7 fluidounces. Mix.

23. *Antiseptic Muslin Gauze*.—Paraffin, 16 parts; resin, 4 parts; crystallized carbolic acid, 1 part. Melt together. Cheap muslin gauze is dipped in the melted mass and well wrung or pressed while hot. A good substitute for oakum as an antiseptic covering for

wounds, unirritating to the most sensitive skin, highly retentive of the acid, and almost destitute of odor. It should, when used, be folded in about 8 layers. It loses the paraffin and resin when washed in boiling water, so the same gauze may be used repeatedly.—*Lister*.

24. *Protective against Local Irritating Effects of Carbolic Acid in Antiseptic Dressings.*—Varnish oiled silk on both surfaces with copal varnish. When dry, brush over with a mixture of starch and dextrin, to give it a film of material soluble in water, so that it becomes uniformly moistened when dipped into antiseptic lotion. When not at hand, common oiled silk may be used as a substitute for it, if smeared with an oily solution of carbolic acid, and used in two layers, to make up for its inferior efficiency.—*Lister*.

25. *Antiseptic Adhesive Plaster.*—Dip ordinary strapping in hot solution of carbolic acid, made by mixing 1 part of 1 to 20 lotion with 2 parts of boiling water. Will adhere to a moist skin, so that it may be employed under spray when advisable.—*Lister*.

26. *Carbolized Powders.*—Pure liquefied carbolic acid, 5 parts; alcohol, 5 parts. Mix. Add by degrees 100 parts of one of the following powders: lycopodium, starch, charcoal, plaster-of-Paris. The proportions of carbolic acid can be increased or decreased as desired.—*Author*.

27. *Antiseptic Catgut Ligature.*—Catgut of the thickness required is to be kept steeped in carbolized olive oil (1 pint in 5), with a very small quantity of water diffused throughout it.—*Lister*.

28. *Aceto-Carbolic Solution for Tinea and Scabies.*—Acetic acid (pyroligneous), 8°, 20 parts; pure carbolic acid, 5 parts; water, $\frac{1}{2}$ 75 parts. Mix the two acids and add the water. The acetic acid favors penetration through the epidermis. For tinea, apply the liquid, once a day, over the diseased parts, by means of a brush. For scabies, sponge all the parts. The clothes, &c., of the affected individual should also be treated with the liquid.—*Lemaire*.

29. *Carbolized Gargle for Diphtheria, Tonsillitis, &c.*—Carbolic acid, 20 minims; acetic acid, $\frac{1}{2}$ drachm; honey, 2 fluidounces; tincture of myrrh, 2 fluid-drachms; water, 6 fluidounces. The carbolic and acetic acids to be well shaken together before the other ingredients are added.—*Charles Sedgwick, Jr.*

30. *Carbolized Mixture for Zymotic Diseases.*—Carbolic acid,

acetic acid, of each 1 drachm to $1\frac{1}{2}$ fluid-drachm; tincture of opium, 1 fluid-drachm; chloric ether, 1 fluid-drachm; water, 8 fluidounces. A tablespoonful every four hours until the fever has subsided.—*Dr. Alex. Keith.*

31. *Mixture of Quinine and Sulpho-Carbolate of Sodium.*—Quinine sulphate, 1 grain; sulphuric acid, 5 minims. Dissolve, and add to the solution of sodium, sulpho-carbólate, 20 grains; in water, 1 fluidounce.—*Author.*

ON AN APPARATUS FOR MAKING SYRUP BY THE COLD PROCESS.

BY GEO. MACDONALD.

The question as to the real utility of what is known as the "cold process" for making simple syrup, having been considerably agitated in the pharmaceutical journals of the country during the past year, I wish to add my testimony in its favor.

I have, during the past ten years, made considerable quantities of simple syrup by this method, and with uniformly good results. When the operation is properly conducted, the resulting syrup is beautifully bright, of good density, and keeps well (much better than syrups made with heat) even during the hottest summer months. It also recommends itself by its convenience, as by its use the application of heat, and the operations of clarifying and straining are completely dispensed with, with the satisfaction of obtaining, with all this saving of trouble, a really better product.

The apparatus I have been in the habit of using is quite cheap, and simple in construction, and as I do not think it can easily be excelled for *real* convenience and utility, a description of it may be of interest to some readers of the journal. Before describing it, however, I will say that I obtained the idea for the percolator from an article published in the "Druggists' Circular," ten or twelve years ago. For the receiver, which embodies an application of a well-known natural principle, I claim for myself no particular merit.

The first and most essential part is, of course, the percolator. To make this, take an ordinary iron-bound ten gallon keg, the head of which consists (preferably) of one piece. Take out the head by loosening the hoops, and bore in it with a quarter-inch augur bit, as many holes as you possibly can without weakening it too much—one inch apart is about the proper distance. You now drop the perfor-

ated head into the bottom of the keg, taking care that it shall be as nearly as possible equi-distant from the true bottom, and as it will not fit perfectly on account of the inequality of the staves, pack around the edges, where necessary, with raw cotton. You then again tighten the upper hoops. Between the true and false bottom there is left a space of about an inch. Bore into this space a hole of suitable size and insert a small faucet, one of the old fashioned, metallic, screw-top kind I have found answers best. With the exception of the flannel strainer, which is placed over the perforated bottom, and which I will afterwards describe, the percolator is now ready.

You now take another ordinary keg of about twenty-five (25) gallons capacity, and insert as near the bottom as possible, a faucet of the kind usually known as a "molasses-gate," and about three or four inches above the middle (or where the bung is usually bored) another faucet of the same description. The object of this will be seen further on. In the head of the keg, near the edge and on the same side, and in a line with the faucets, bore a one-inch hole for the insertion of a funnel. This constitutes the receiver.

To arrange the apparatus for use, obtain a box the width of which will be about six inches greater than the greatest diameter of the large keg, and the length about four or six inches more than the height of the keg. One of the largest sized boxes in which drugs are packed (about three feet in length, two feet in width, and one foot and a half in depth) will be about right. Remove the cover and set it securely on end on another box of proper strength, and about a foot high. In it place the receiver, allowing its edge to project about a couple of inches beyond the front of the box. On the top of this box place the percolator in such a manner that the faucet will be, as nearly as possible, over the centre of the funnel in the receiver. Four thicknesses of fine flannel must now be laid over the perforated bottom of the percolator, and the apparatus is ready for use.

I will here state that the apparatus of the dimensions herein described, is intended for making one hundred and sixty (160) pounds of white sugar into syrup. For making smaller quantities a smaller receiver should be used.

In making simple syrup by this process the proportions used are fourteen (14) pounds avoirdupois of white sugar to one gallon of water, which, as there is little loss by evaporation, furnishes a result which approximates very closely with that of the pharmacopœia.

In making syrup, the operator may either weigh and measure out the requisite quantities of sugar and water beforehand, or he may keep account of the relative quantities used during the progress of the operation. The method of procedure is this: Put into the percolator as much sugar as it will hold, being careful not to disarrange the flannel strainer, and add water till it is full. Let stand about half an hour, or until the sugar has absorbed as much of the water as it will, and then open the faucet so that the syrup may pass through either in a *very* thin stream, or in a rapid succession of drops, and leave it so until there is no more water in the percolator. Then close the faucet, refill with sugar and water, and proceed as before and continue until all the water necessary for the sugar has been added. If the operation has been properly conducted (and a little experience will ensure this) it will be found that after the last portion of water has been added and passed into the receiver, that the percolator is half, or perhaps two-thirds full of undissolved sugar. And here will be seen the purpose for which the upper faucet in the receiver was designed. The syrup that passes into the receiver is not of uniform density, and the lighter portions, as a matter of course, will be found at the top. The upper layers are usually quite thin. These are drawn off by the upper faucet and poured upon the undissolved sugar, a gallon at a time until all has passed into the receiver. The receiver is then taken down, laid upon its side on the floor and well shaken until all the parts are thoroughly mixed, when it is again to be placed in position to be drawn from as required.

This method is especially to be recommended to dealers who sell large quantities of soda water, and it requires neither great skill nor close attention, does away with the necessity for the use of fire during the hot summer months, and furnishes a product which is in every respect unexceptionable.

Cairo, Ill., Oct. 12th, 1871.

CUNDURANGO.

Editor American Journal of Pharmacy:

Dear Sir:—We had a few days since a call from Mr. Wiehl U. S. Consul at Guayaquil, with samples of the flowers, leaves and fruit of the cundurango vine.

The name cundurango means literally eagle vine. Of this plant, it appears there are some six known varieties, but three of which have

been much used medicinally, called in Spanish, dog killer, big fruit and little fruit. The dog killer is the only true officinal cundurango, and is easily distinguished from all the other varieties, by the fact that when cut transversely, the bark of the vine is full of small red crystals, which are resinous and shining in cells. All these plants belong to the Asclepiadæ family. The flower, the leaf and the pod, with the seed and silk fibres of the true "mata perro" or dog killer, look almost precisely like those of our own milkweed.

The cundurango is a tropical climbing milkweed, seeking the loftiest trees in the cinchona region, and the testimonials about it are very high as an alterative for syphilitic affections, &c.

In haste, your friend,

DAN. C. ROBBINS.

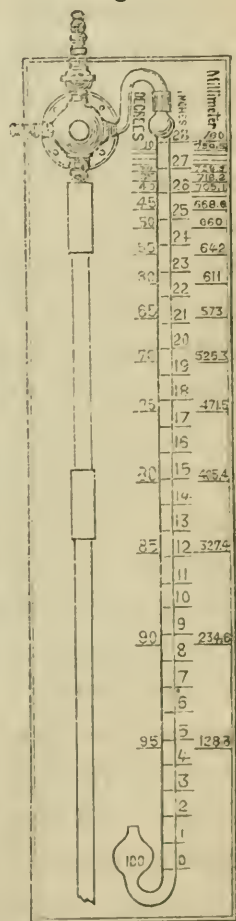
ON THE WATER AIR-PUMP AND ITS USES.

BY F. A. WOLFF & SONS, of Heilbronn.*

The water air-pump, as constructed by the authors, consists mainly of metal. It differs also from the one described on page 402 of this volume, in the admittance of the water from the top, and in making the connection with the vessel to be exhausted at the side. The laboratories being mostly on the ground floor, and a well of sufficient depth frequently not at command, the pump itself may be placed in an upper story, while the vacuo-meter, the cock for the water supply, and a piece of glass tube, inserted in the leaden discharge-pipe, may be placed in the laboratory, the only inconvenience resulting from such an arrangement being the increased length of two or three pipes. The action of this air-pump is at first slow, until the falling water has displaced the air entirely from the discharge-pipe, when it rapidly increases.

The cut represents the air-pump in one-tenth of its natural size. With the barometer at 750 mm. and a bore of the discharge-pipe of 8 mm., a rarification of the air was obtained corresponding to the

Fig. 1.



* Reprint from N. Jahrbuch für Pharmacie, communicated by the authors, and condensed by the editor.

following number of millimeters, if the perpendicular length of the discharge-pipe was—

3 meters	to	130 millimeters.	9 meters	to	526 millimeters.
4	"	200	10	"	580
5	"	280	11	"	642
6	"	320	12	"	705
7	"	400	13	"	715
8	"	471	14	"	728

With the above diameter and greatest length of the discharge-pipe a vacuum corresponding to 573 mm. may be produced by 10 litres water in a vessel of the same capacity within 10 minutes.

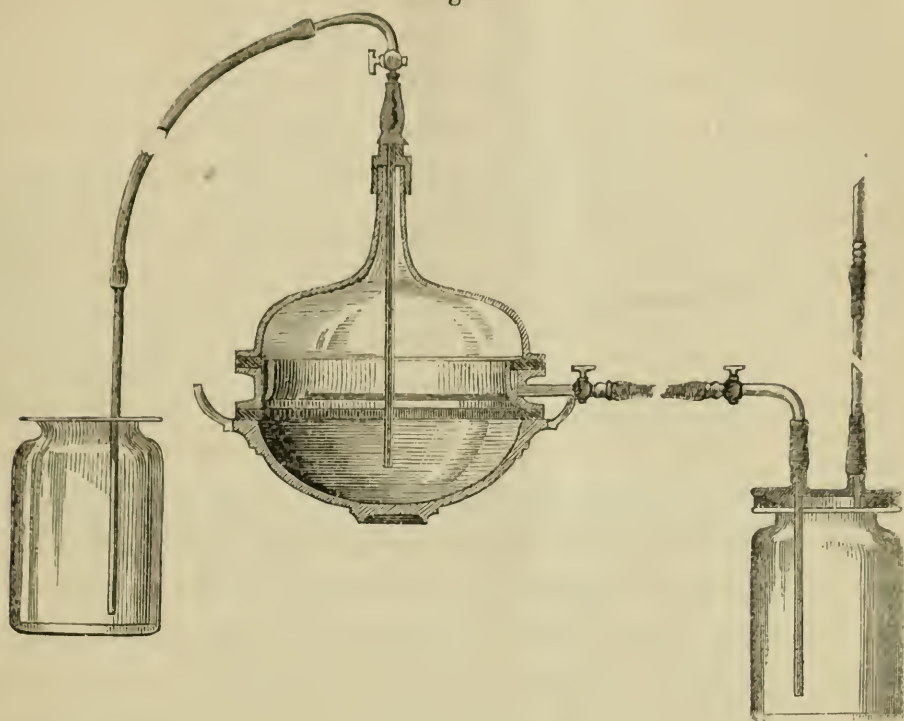
The above results will be obtained only by regulating several times the water supply cock, so that the glass tube inserted in the discharge-pipe will show air-bubbles of uniform size mixed with sufficient quantities of water.

Evaporation, Boiling and Distilling in vacuo.—The boiling point of a liquid is influenced by the pressure upon it. The degrees in the scale of fig. 1 are centesimal, and give the boiling point of water at a pressure indicated by the figures on the opposite side, the barometer being 760 mm., = 28 Paris inches. With the pressure of the air at 730 mm., = 27 inches, water will boil at 10, 15, 20, 30, 40, 60 and 80° C., requiring the column of mercury to be 720·8, 717·3, 712·6, 698·5, 675·1, 581·2 and 375·4 mm. The barometer at 700 mm., = 25·1 inches, demands for the same purpose a mercury column of 690·8, 687·3, 682·6, 668·5, 645·1, 551·2 and 345·4 mm.

For evaporation *in vacuo*, the authors use a hemispherical vessel, with a flat rim, and of sufficient strength to withstand the great pressure. They use as a cover or head a glass vessel of similar shape, uniform in thickness, and at the arch lengthened out, so that, by a heavy rubber pipe, it may be connected directly with the water-pump. The contact between the upper and lower hemispheres is perfected by a rubber gasket, and by pressing the hand upon the cover for a minute or two, when the pump begins to work. The vapors of the evaporating liquid at first condense upon the inside of the glass head, and return into the evaporating basin; but the connecting-pipe soon becomes sufficiently warm to pass the vapors without condensation into the pump, increasing thereby its effects. The boiling liquid may now be easily examined through the glass cover.

A greater distance between the water air-pump and evaporating basin necessarily increases the condensation of the aqueous vapor in

Fig. 2.



the connecting-pipe. To prevent their returning into the evaporating basin, a metallic recipient, forming a ring about 6 cm. high, is inserted between the basin and head. This ring has on its inside a gutter, connecting on one side with a pipe of any desired length. (See fig. 2.) The pipe has two stop-cocks, the inside one being kept open while the outer is closed. To discharge the accumulated water, the inner cock is closed, and the water run off by emptying the outer one, which is then again closed and the inner one *gradually* opened, to prevent the water accumulated in the gutter from being forced back into the basin by the air now contained in the pipe. It will be observed that evaporation may thus be uninterruptedly continued without interfering with the vacuum.

The more the pressure is reduced inside the apparatus, the more violent will be the concussions produced by the vapors escaping from the liquid, increasing the liability of the latter to boil over. Great care must therefore be exercised in the application of heat, or the violence of the concussions at once lessened by admitting a little air

through the cocks connected with the recipient, thereby decreasing the partial vacuum.

The vapors of the evaporating liquid may be condensed by connecting the basin with the pump, instead of from the dome of the cover, from the pipe of the recipient, and inserting a suitable flat-lipped vessel, as arranged in fig. 2, the stop-cocks in the pipe being then unnecessary. The air is now exhausted through this cooler, which is immersed in cold water and receives the condensed liquid.

Should the liquid to be evaporated be of a larger volume than the capacity of the basin, the latter is filled from time to time through a pipe connected with the cover, by opening the stop-cock, when the atmospheric pressure will force the liquid from the supply vessel into the basin without disturbing the operation. Large quantities may thus be evaporated from relatively small basins without destroying the vacuum.

The authors regard flat evaporating basins, not materially departing from the spherical or elliptic shape, as the most suitable forms, and caution against the employment of flat-bottomed vessels. The strength of these vessels must be sufficiently great to withstand the pressure. A perfectly exhausted vessel, the barometer being 760 mm., = 28 Paris inches, sustains a pressure of 2.066 lbs. upon each square centimeter surface. A basin of 5 litres capacity has a surface of 960, the recipient 910, and the glass head of 980, the whole apparatus 2850 cm. surface, which would have to sustain a pressure of 5880 lbs. Since, however, evaporation is in this apparatus really performed at a pressure of 730 mm., = 27 inches, the weight to be sustained is reduced to 5670 lbs. The authors have used tinned copper and block tin basins with success, also glass basins of 3 litres capacity, and they are experimenting with porcelain.*

Filtration in Vacuo.—It is exceedingly difficult to regulate the working of the water air-pump so as not to produce too excessive a pressure for the filter to sustain. A stop-cock, that may be introduced between the vessel and the pump, would but partly fulfill the desired object, because it does not allow to obtain any desired degree of partial vacuum. The authors constructed a simple regulator, consisting of a metallic pipe, inserted at the place mentioned, to which a curved handle is soldered, supplied with a screw ending into a fine

* Porcelain-lined iron basins might answer for many purposes.—J. M. M.

steel point, which fits into a small hole drilled into the side of the pipe. By loosening the screw more or less, any desirable quantity of air can be here constantly admitted and a pressure obtained, remaining perfectly uniform during the operation.

Fig. 3.



To facilitate the filtration of larger quantities of liquids, a filtering vessel, (fig. 3) has been constructed of porcelain or metal, in which the disc rests upon a sieve, thus presenting a large surface to the action of the vacuum. The funnel end of this vessel prevents the filtered liquid from contact with the rubber gasket, and permits the use of receiving-bottles of different diameter in the neck.

Drying of Crystals and Herbs.—It is theoretically correct that water boils in a vacuum of 720 mm. at 39° C., and it might be supposed that damp crystals and fresh herbs could be rapidly dried therein. The water, however, does not adhere superficially to the plants, but is contained in their cells; they therefore part with it with difficulty, and are often taken out of

the vacuum in an almost “scalded” condition. It is similar with crystals, which do not lose their interstitial water any quicker *in vacuo* than in the open air; and, if the evaporation is facilitated by the application of heat, the water of crystallization is likely to be likewise expelled.

For many, if not for all crystals and herbs, not the rarification, but a current of air, is requisite to obtain satisfactory results, and this may be readily produced by means of the water air-pump.

In conclusion, the authors give some good advice about the putting up and the use of this instrument. They particularly recommend to employ as few stop-cocks as possible, which soon begin to leak under greatly reduced pressure. When, after some experience, the apparatus has received its most advantageous position, some of the rubber tubing may be replaced by suitable metallic pipes.

THE COMPOUND IRON MIXTURE OF THE PHARMACOPŒIA.

BY C. A. STAPLES.

This has always been a favorite medicine, and, when carefully prepared, is perhaps one of the safest and most efficacious of the tonic

chalybeate emmenagogues, and, consequently, it is the one most frequently prescribed, but it has always been exposed to the great objection that its extemporaneous preparation takes considerable time, and it cannot be kept ready for use as its character soon changes,—a few hours making a perceptible difference in its appearance, even if it does not in its medicinal efficacy. To remedy this defect, I endeavored to prepare it in a concentrated form in two bottles. After a few experiments, I adopted the following formula, which I have used for a number of years, and the result has been so satisfactory as to leave nothing to be desired:—

R. Gum. Myrrh. ʒij
Potas. Carb. ʒj
Sp. Myrist. ʒviiij
Aq. Rosæ ad ʒxxx.

The myrrh should be carefully selected—clean pale pieces, presenting an opaque fracture being the best. Beat it as fine as possible in a large mortar, then add the carbonate of potash with a little rose-water and grind it to a smooth paste, gradually add about half a pint of rose-water to make a fine emulsion, add the spirit of nutmeg and as much more rose-water as will make it twenty ounces; preserve it in a stoppered bottle, labelled “Concentrated Myrrh Emulsion pro Mist. Ferri Co. ʒj to ʒj.”

For the other bottle, boil 2 fluid-ounces of distilled water in a glass flask; add ʒj of sulphate of iron, pure and free from oxide, dissolve and filter it into a 6-ounce bottle and fill it up with simple syrup; label it “Syrup of Sulphate of Iron gr. j in ℥vj, or ℥xv to each ounce of Mist. Ferri Co.”

These preparations will be found very convenient; as for each ounce of the mixture you have merely to measure ʒj of the emulsion and ℥xv of the syrup, dilute each with a portion of rose-water, mix and fill the bottle with rose-water, and mist. ferri co. of excellent quality is made in a few seconds.

Both preparations keep well; the quantity of spirit in the emulsion preserves it from decomposition, and it rather improves by keeping; and the syrup will be found to keep free from oxide, which the crystals rarely are, however pure they may appear to be. It may also be used for dispensing sulphate of iron in other mixtures, where the sugar is not an objection; for this purpose I make the above solution of ʒj of sulphate into an 8-ounce bottle of syrup; this gives one part of

sulphate in eight measures of syrup, which I find more convenient for general dispensing, but it contains too much sugar for the mist. ferri co. as directed in the present edition of the Pharmacopœia.—*Pharm. Journ. and Trans.*, Sept. 2, 1871.

ON THE BEHAVIOR OF SUPERSATURATED SALINE SOLUTIONS
WHEN EXPOSED TO THE OPEN AIR.*

BY CHARLES TOMLINSON, F.R.S.

It is known that, when a vessel containing a supersaturated saline solution is opened in a room, it immediately crystallizes, provided the temperature be not too high. Mr. Tomlinson shows that supersaturated solutions of Glauber's salt (and also of Epsom salt, and of alum) may be exposed to the open air of the country for many hours, and even be taken out of the flasks in clean metal spoons, without crystallizing. From a large number of experiments, conducted under various conditions, the following conclusions are drawn:—

1. That a highly supersaturated solution of sodic sulphate may be exposed to the open air of the country in an uncovered flask, and in cloudy weather, for from twelve to twenty hours, without any formation of the ordinary ten-watered salt.

2. That if the temperature fall to 40°F., and under, the modified seven-atom salt is formed at the bottom of the solution, just as in covered vessels.

3. That if the exposed solution suddenly crystallizes into a compact mass of needles, a nucleus may always be found in the form of an insect, a speck of soot, a black point of carbon, &c.

4. That if, during the exposure, rain come on, the solution generally crystallises suddenly, in consequence of an active nucleus being brought down. But if the flask be put out *during* heavy rain, when we may suppose all the solid nuclei to have been brought down, the rain-drops, now quite clean, fall into the solution without any nuclear action.

5. That the young and newly-sprouted leaves of trees, such as the gooseberry and current bushes, have no nuclear action.

6. That, in clear cloudless weather, when the force of evaporation is strong, the solutions, by exposure, produce fine groups of crystals

* Read before the British Association, Edinburgh Meeting, Section B.

of the ten-atom salt, just as a saturated solution would do if left to evaporate slowly in an open dish.

7. That if the solution, after being exposed to the open air, be brought into a room, it crystallizes immediately under the action of aerial nuclei.—*Chemical News*, August, 1871.

SACCHARATED TAR, OR SOLUBLE VEGETABLE TAR.

By M. A. ROUSSIN.

The value of vegetable tar as a therapeutic agent is generally recognized, but hitherto, in consequence of the small extent to which it is soluble in water, its use has been limited. Many attempts have been made to secure a greater solubility, but this has only been obtained by the employment of alkalies,—that is to say, by saponification. But saponification undoubtedly modifies the elements of the tar, and partly destroys its curative properties.

According to M. Adrian, “these preparations do not correspond by their chemical composition to the therapeutic properties that are expected in them,” and he states that he has found alkalies, as well as acids, to modify the resinous qualities that are the basis of the medicament.

Dr. Jeannel has expressed a similar opinion. He says it is necessary that the tar should be emulsed by a neutral substance, since by so doing all the natural properties of the tar would be preserved.

Impressed with the correctness of this idea, M. Roussin sought to adapt to vegetable tar the same process by which he was able, on a former occasion, to form an emulsion with balm of copaiba.* At that time he proposed to use sugar for facilitating the emulsion of copaiba in water, and as a corrective of the repulsive taste of that substance. Sugar being a neutral substance, without any chemical action capable of modifying the composition or curative properties of medicinal substances; and daily associated without hesitation with all kinds of remedies.

After several attempts this problem was resolved, and a complete solution of the vegetable tar in water obtained. The emulsion of tar was effected by triturating in a porcelain mortar, so as to obtain a homogeneous paste, purified tar, powdered sugar and powder of gum

* “Annales du Comité Médical des Bouches-du-Rhône,” t. v. p. 67.

arabic. A small quantity of water was added to obtain an emulsion; it was then left to stand, and afterwards decanted. This saccharated emulsion had not the repulsive odor of the emulsion prepared with alkali; it possessed the odor of tar, and a taste neither sharp nor bitter. It was miscible with water in all proportions, so that, by estimating the quantity of tar present, a solution might be prepared instantaneously, containing any required quantity of the active principle.

But the liquid form of the medicament presenting many and serious inconveniences, it appeared to M. Roussin that the pulverulent form, with all its practical advantages, would be very desirable. He therefore pursued his researches until he succeeded in obtaining a saccharate, as a yellow powder only differing from sugar in appearance by its color, and exhaling the balsamic odor of tar. This preparation constitutes a remedy essentially new in form, and appears to be the real and complete solution of the problem of Dr. Jeannel.

The saccharate of tar is constant in its composition. It contains 4 per cent. of purified vegetable tar. A teaspoonful (5 grammes) thus represents 20 centigrammes of tar, and will suffice for the preparation of a litre of water.

According to M. Bouchardat, 30 grammes of tar-water contain nearly 1 centigramme of the principles of the tar in solution. This would be nearly 30 centigrammes to the litre. Soubeiran says that the proportion of matter dissolved in tar-water is so small that 100 grammes do not contain 4 centigrammes (less than 40 centigrammes the litre), and that patients can scarcely support the tar-water unless it be diluted.

The irritation of the stomach often provoked by the tar-water of the Codex is prevented by the saccharate; the proportion being but 4 per cent., the acidity of the tar is covered. Another advantage, not less important, due to its pulverulent form, is that it avoids the necessity of swallowing a large quantity of liquid, since a glass of water is sufficient to dissolve several teaspoonfuls. The physician can thus augment the quantity of tar according to the necessities of the patient.

The pulverulent form has another valuable advantage. Patients who are unable to overcome the repugnance the odor and taste of tar often provoke, may enjoy the benefits of this therapeutic agent by making up the saccharate into a pill with unleavened bread.

Gay, speaking of the acidity and repulsive taste of oil of tar, recommended that it should be sweetened, "in order to mask its flavor and its odor." Sugar, as I have said, does not alter the therapeutic properties, but modifies its organic properties and facilitates its absorption. While retaining the odor and taste of the remedy, the saccharate so disguises them that the most delicate stomachs can bear it without repugnance.

The saccharate of tar is not the result of a chemical reaction; it is a simple mixture, each of the elements of which retains intact its composition and its properties. Constant in its composition, it will furnish solutions really and mathematically entitled to the name, being able to fulfil all the conditions necessary for mixtures, gargles, injections, etc., and enabling the physician to give his patient such quantity of tar as he may deem necessary.—*Pharm. Journ. and Trans.*, Sept. 23, 1871., from *Journal de Pharmacie et de Chimie*.

THE COLLECTION OF MASTIC AT CHIOS.

BY M. J. LEON SOUBEIRAN.

Mastic flows from the *Pistacia Lentiscus*, a Terebinthaceous tree, growing principally in the south of the Isle of Chios, about Cape Mastic, which takes its name from this resin, and is situated about an hour's journey from the city of Chios. According to the natives it exudes, not only from artificial incisions, but also spontaneously from the branches, where it congeals in drops, which, under the name of *dakra* (tears), are gathered separately, and constitute the most esteemed kind. But the bulk of the resin issues from vertical incisions skilfully made with a knife close together round the whole circumference of the trunk, from the root to the branches. A few hours after this operation, which is done about the middle of June, there issues from the incisions a resinous, transparent, aromatic substance, which soon solidifies. After fifteen or twenty days this resin is collected in little baskets, lined with white paper or clean cotton cloths. Previous to this time the ground underneath the tree is covered so as to prevent the juice, which runs plentifully, from being soiled by the earth. If such contamination does take place, care is taken to cleanse it directly it is collected. The production of resin, which is collected by women and children, lasts about six months, and is valued at about £8 to £10 for a full-grown tree.

The mastic that exudes spontaneously is divided into two kinds,—the *kadisto*, which averages in value 100 Turkish piastres, the oke of 1200 grammes, and the *phliskari*, which has nearly the same value. That which drops from the incisions and is picked up from the ground is the *peetta*, worth 80 piastres the oke ; whilst the worst quality, that which is mixed with earth, called *phluda*, is only worth from 40 to 60 piastres.

The annual production is about 2,000,000 drachms, and is attributed, by the natives of Chios, to the intervention of Saint Isidore, martyred in that island in the third century ; the drops of blood of that martyr having given birth, they say, to the mastic tree.

In the East mastic is employed to strengthen the gums and to perfume the breath. It is at present little used in medicine, but principally in the arts, in the preparation of varnish.

A turpentine which has enjoyed a great reputation is also obtained at Chios, from the *Pistacia Terebinthus*, by means of more or less deep incisions in the trunks of the larger trees.—*Pharm. Journ. and Trans.*, Sept. 16, 1871, from *Journ. de Pharm. et de Chimie*.

“ CORRASSA COMPOUND.”

BY F. M. GOODMAN.

I noticed in a previous number of the *Pharmacist*, vol. 3, p. 69, a letter from a correspondent asking information upon the so-called “Corrassa Compound.” Since then, being requested to prepare some from a sample, I made a superficial examination of the substance.

It is of a light fawn color, resembling Dover’s Powder, thus dispelling the idea of its containing “extracts.” An examination through a small microscope revealed three powders, of different colors and different degrees of division, and by using sieves of the requisite fineness, these were easily separated.

The first, passing through a No. 90 sieve, of a yellowish color, was unmistakably powdered gentian.

The second, much coarser, separated by a No. 60 sieve, was of a white color, and proved to be sugar.

The third, which remained in the sieve, was a little cochineal—probably added to color the mixture when taken in water.

As a result of the foregoing examination, the following approximate formula is given, in parts :

Powd. sugar	.	.	.	.	.	.	24
“ gentian	.	.	.	.	.	.	8
“ cochineal	.	.	.	.	.	.	1

M.

This is about as harmless a preparation as is ever vended by self-styled doctors, charitable missionaries, etc. The above compound may be obtained of J. T. Inman, M. D., LL. D., etc., New York, at \$3.00 an ounce.—*The Pharmacist*, Sept., 1871.

Chicago, August, 1871.

IMPURITIES IN CHLORAL HYDRATE.

By FRED. VERSMANN, Ph. D.

In a discussion on chloral hydrate at the meeting of the Pharmaceutical Association at Edinburgh, attention was drawn to certain impurities, which greatly invalidate the application of the remedy, and hopes were expressed that the matter might be inquired into. I had lately occasion to inspect large quantities of such impure preparation, partly made by foreign manufacturers, but partly also by an English firm. The impurity is exactly the same in both cases,—most likely a result of the manufacturing process, and ought to be capable of being remedied. The impure hydrate gives off dense, strongly acid fumes as soon as the bottle is opened; these fumes affect the eyes and the skin most severely, to such extent that, on manipulating with about a cwt., the epidermis of the operator's hands was completely destroyed.

I purpose sending to the evening exhibition next week a sample of chloral hydrate in this state, and also another which I have succeeded in depriving of the objectionable character above mentioned. The question naturally arises, whether the formation of the foreign compound cannot be avoided. It is not hydrochloric acid, as has been suggested, but an organic chlorine compound (perhaps chlorpicrine) formed together with chloral, and not resulting from a decomposition of the latter. I first was under the impression the fumes were due to a small quantity of chloral, not hydrated, the strong penetrating smell of which is somewhat similar, but solution in water does not take away the strong smell. In a short time I hope to be able to state definitely the nature of this impurity.—

150 Fenchurch Street, E. C., Sept. 26th, 1871.

Pharm. Journ. and Trans., Sept. 30, 1871.

DETERMINATION OF CITRIC ACID.

By H. KÄMMERER.

Soluble citrates mixed with acetate of baryta, either hot or cold, produce a white amorphous precipitate, being 3 BaO , $2 \text{ C}_{12}\text{H}_5\text{O}_{11}$, $3 \text{ HO} + 14 \text{ aq.}$

If, after precipitation, an excess of acetate of baryta be added, and the mixture heated in a water-bath, the precipitate becomes heavy and granular, it loses one-half of its water of crystallization, and has now the composition 2 BaO , $2 \text{ C}_{12}\text{H}_5\text{O}_{11}$, $3 \text{ HO} + 7 \text{ aq.}$

The presence of other organic acids does not interfere; the granular salt is absolutely insoluble in water, and citric acid may thus be easily determined. If the solutions are very dilute they must be concentrated by evaporation, after additions of acetate of baryta, or the precipitate will consist of crystalline needles containing only 5 aq.—*Pharm. Journ. and Trans.* Oct. 7, 1871, from *Zeitschr. für Analyt. Chemie*, viii. p. 298.

PREPARATION OF HYDROSULPHURIC ACID.

By JOHN GALLETTY.

In making some experiments on the action of sulphur on paraffin, I have found that a mixture of these substances, either in equal parts or with a larger proportion of sulphur, when heated in a flask not greatly above the melting-point of the sulphur, begins to evolve hydrosulphuric acid, and continues to give off this gas steadily, while kept moderately heated, for a considerable time.

I have used this process repeatedly, and consider it the most convenient for laboratory use. With a round flask holding about a pound of the materials fitted with a tube bent at right angles about $\frac{1}{2}$ -inch bore and 12 to 18 inches long, containing a little loose cotton wool, and having a smaller tube fitted to the end of this for dipping into the liquid through which it is desired to pass the gas, a convenient stream can be obtained lasting several days. The production of the gas can be stopped and renewed at pleasure by withdrawing or applying the heat. An Argand lamp should be employed, or if a Bunsen is used, the top piece should be on the tube for spreading the flame, so as to avoid heating the flask on one spot. Heavy paraffin oil used for lubricating machinery can be substituted for the solid paraffin, and good results are also obtained with commercial stearic acid, but with the latter the tube conveying the gas soon becomes

covered with drops of a milky liquid, which is probably water and finely divided sulphur. With paraffin the tubes remain clear and bright, except for a little sulphur sublimate close to the neck of the flask.

I observe that Reinsch recommends a laboratory process for obtaining pure sulphhydric acid by heating in a glass flask equal parts of sulphur and suet. The recommendation does not seem to have been generally followed, but the advantages resulting from the substitution of paraffin for suet may lead to the more usual adoption of this process.

Addiewell Chemical Works, Sept. 4, 1871.

—*Chemical News, Oct. 5th, 1871.*

EXTRACTION OF ANIMAL FATS TO BE USED EITHER AS FOOD OR FOR COSMETIC PURPOSES.

BY DR. H. VOHL.

The fresh fat is first as much as possible freed from membranes and flesh, next cut up either into small discs or cubes, and then thoroughly washed with cold water (which should contain the least possible quantity of lime, therefore fresh river, or, better, good rain-water, should be used) until all blood is entirely removed. The fat is next put into a cylindrical stoneware vessel, 1.25 metres high and 0.5 metre inside diameter, this vessel being placed in a water-bath and provided with a tap at the bottom, so placed that the vessel may be emptied without removing it from the water-bath. The vessel having been filled for three-fourths of its capacity with fat, there is placed on the top of it a stoneware perforated disc, and next poured over it (the fat) very dilute pure hydrochloric acid—10 per cent. of the weight of the fat of an acid made up of 3 lbs. of chemically pure HCl at 1.12 sp. gr. to 100 lbs. of water (sulphuric acid is not to be substituted, because its solvent power for membranes is very slight). This having been done, the stoneware vessel is closed with a well fitting cover, and the water-bath heated. From the fat, while melting, the perforated cover carries, by slowly sinking downwards, all the impurities, as far as they are not dissolved by the acid, which at the end of the operation is run off by aid of the tap. The fat is then, while yet molten, washed several times with warm water, to which, for the last washing, some carbonate of magnesia is added. The acid liquid yields, along with phosphorite or other native phosphate of

lime, an excellent manure. The fat is next treated with Canada oil (a refined petroleum spirit), and the solution separated by decantation from any yet present nitrogenous organic matter (membranes, &c.). The solution of the fat is freed by distillation (in a water-bath) from the Canada oil, and the result is the production of a very superior fat, which, being absolutely free from water and other organic, especially nitrogenous matter, is not liable to become rancid, and may be preserved for many years. Although the process here briefly described may appear complicated, it yields not only a better, but also far larger quantity of product.—*Chem. News.*, from *Dingler's Polyt. Journ.*, Aug. 1st, 1871.

Varieties.

Crystallized Aconitine.—H. Duquesnel gives, in the first place, an exhaustive description on the best method of preparing aconitine in crystalline state for pharmaceutical purposes, and next a detailed account of the properties of the alkaloid alluded to. Crystalline aconitine, $C_{54}H_{40}NO_2$, is nearly insoluble in water, even at 100° ; the substance is not volatile, but heated to above 130° is decomposed. Aconitine is soluble in alcohol, ether, benzine and chloroform; insoluble in glycerine and petroleum oils. Aconitine readily forms salts with acids, and is even soluble in water impregnated with excess of carbonic acid. Although phosphoric and tannic acids, as also the double iodide of mercury and potassium, are tests for aconitine, they are not reliable unless taken in combination with its physiological effects.—*Chem. News.* from *Compt. rend.*, July 17th, 1871.

Portable Mixtures.—A new method of administering medicines has been proposed in Sweden, and has come into extensive use in France in consequence of the advantages which it possesses. It is the employment of gelatine as a vehicle, of which Professor Almen, of Upsala, is the initiator. Six grammes of gelatine are dissolved in warm water, and the desired medicine is added to the solution, which is then turned out on a glass plate to solidify, evaporate and dry. This mass, which is about as thick as paper, is then divided into squares of such size as to contain the proper dose of the medicine. A slight addition of glycerine makes this preparation tough and flexible as paper. Insoluble agents are added to the gelatine solution by a thick emulsion of gum or tragacanth.

Morphia, emetics, acetate of lead, sulphate of copper, extracts of opium and belladonna and powders of digitalis, and camphor are thus easily kept ready in a portable form and administered when necessary.—*Medical Press and Circular*, Sept. 13, 1871.

Approximate Measurement.—Mr. E. B. Suttleworth, in the *Canadian Pharmaceutical Journal* for September, has an article on this subject in which he shows the absurdity of ordering potent medicines by drops; as dropped from vessels of different shape and size, he obtained for one fluid drachm of laudanum from 50 to 135 drops. He likewise examined the teaspoons as met with in commerce, and found them to be of three or four sizes, holding about 55, 75, 85 and 95 minims respectively. The dessertspoon, as now met with, holds 150 or 200 minims, and the tablespoon 4, 5 or 6 fluid drachms. The author recommends physicians always to specify the use of *small* spoons, when the possibility of giving an under dose is exceedingly remote, the chances still being that the quantity will be over the mark. The dessertspoon might well be abandoned entirely, as the measuring of two teaspoonfuls is almost as convenient and far more likely to be correct.

Glycerized Cotton for Dressing Wounds.—Professor Gubler, at a recent meeting of the Académie de Médecine, exhibited some specimens of wadding prepared by saturating it with a certain quantity of glycerine, which he had found to render it permeable to all medicinal liquids, without causing it to lose any of its suppleness and lightness. He suggested that in this state it might prove a useful substitute for charpie, in the event of a scarcity of that article. Dr. Delaborde has already employed it with advantage. In order to prepare this dressing, it is only necessary to pour a small quantity of glycerine over the square sheet of wadding, and afterwards express it as strongly as possible.—*Pharm. Journ. and Trans.*, Sept. 30, 1871, from *Journ. de Pharmacie et de Chimie*.

Water unfrozen at a temperature of -18°C .—Boussingault finds that by preventing the dilatation of water, it may be kept unfrozen down to -18°C . He experimented with a gun barrel of steel, into which a steel ball was dropped before filling it with water. During the cold days of December 26, 27 and 30, last, the temperature fell to -12° and -18° , and yet on shaking the tube the ball was found to move freely, showing that the water was not frozen.—*Amer. Journ. Sci. and Arts*, Oct., 1871, from *L'Institut*, July 12.

The Manufacture of Platinum.—As an item worthy of record amongst our mechanical news, we would notice the establishment in our country of a new manufacturing industry, namely, that of the manufacture from the raw material of platinum vessels, wire, etc., for the use of the chemist, and of those engaged in technical pursuits. For our supply of these materials we have been until the establishment of this enterprise, entirely dependent upon European makers. The establishment is now, we believe, successfully conducted, in New York, by Mr. H. M. Raynor, and we wish the undertaker of it success.—*Journ. Frank. Inst.*, Oct., 1871.

*Simple Process for Nickel-Plating.**—Prof. F. Stolba communicates a plan

*Dingler's Polytechnisches Journal, cci, 145.

for nickel-plating, by the action of zinc upon salts of nickel in the presence of chloride of zinc and the metal to be coated. By this process, the author informs us, he has succeeded in plating objects of wrought and cast-iron, steel copper, brass, zinc and lead. It is only necessary that the size of the objects should permit them to be covered entirely by the plating liquid, and that their surfaces should be free from rust or grease. The following is the *modus operandi* :

A quantity of concentrated chloride of zinc solution is placed in a cleaned metallic vessel, and to this is added an equal volume of water. This is heated to boiling, and hydrochloric acid is added, drop by drop, until the precipitate which had formed on adding water has disappeared. A small quantity of zinc powder is now added, which produces a zinc coating on the metal as far as the liquid extends. Enough of the nickel salt (the chloride or sulphate answer equally well) is now introduced to color the liquid distinctly green ; the objects to be plated are placed in it, together with some zinc clippings, and the liquid is brought to boiling.

The nickel is very soon precipitated, and in course of fifteen minutes, if the work has been properly performed, the objects will be found completely coated. The coating will vary in lustre with the character of the metallic surface ; where this is polished the plating will be likewise lustrous, and *vice versa*.

Varying the process by the addition of a salt of cobalt, instead of nickel, will afford a cobalt plating, which, the author informs us, is steel grey in color, less lustrous and more liable to tarnish than the nickel.—*Journ. Frank. Inst.*, Oct., 1871.

Pharmaceutical Colleges and Associations.

THE CHICAGO COLLEGE OF PHARMACY has lost everything it possessed, during the late disastrous fire, with the sole exception of its members. The cabinets, the library, the furniture of their hall, the "Pharmacist," even the private collections and apparatus of the Professors at the time stored in the building, have been burned. The course of lectures had been opened in the first week of October, and the prospects were bright for a full class, when the conflagration destroyed in a few minutes what had cost years of labor to build up. It is possible that, notwithstanding the calamity, the lectures may be resumed again during this winter ; but, to assist the College and, if possible, to help the "Pharmacist" on its feet again, it is the plain duty of all subscribers to and advertisers in the latter to send in their dues for subscription and advertising without delay, and we appeal to all who may be indebted in this way to our young sister institution, to forward their dues to Prof. A. E. Ebert, corner of Twelfth and State streets, Chicago, who escaped the enormous destruction of property, and who will receive all moneys for the College.

Druggists, manufacturers, publishers and others, who are able to contribute specimens of drugs, chemicals, apparatus, or publications, have an opportunity of aiding the cause of pharmacy, if they will make such donations to the cabi-

nets and to the library. Since the College has lost everything, anything related to pharmacy as a trade or profession will be an acceptable and welcome gift.

PHILADELPHIA COLLEGE OF PHARMACY.—The lectures in this institution have commenced under very favorable auspices, and the practical school is well attended. At a special meeting of the Board of Trustees, recently held, it was resolved, in case the Chicago College of Pharmacy should be unable to resume lectures during the coming winter, to tender to all matriculants of that College the matriculation ticket, and such lecture tickets as they may have there paid for, free of charge for the present session.

The movement inaugurated by this College to close dispensing stores earlier in the evening than heretofore (see p. 474 of our last number), resulted in several meetings of the pharmacists of this city; and, after canvassing the city, it was resolved to close dispensing stores at 10 o'clock P. M. A circular has been issued, inviting the co-operation of the public, by obtaining medicines required, and having old prescriptions renewed before that hour.

THE VERMONT PHARMACEUTICAL ASSOCIATION held its second annual meeting, at Rutland, October 11th, and elected the following officers for the ensuing year: President, Fred. Dutcher, St. Albans; Vice-Presidents, Elam C. Lewis, Rutland, and M. K. Paine, Windsor; Secretary, Albert W. Higgins, Rutland; and Treasurer, Collins Blakley, Montpelier. Fourteen new members were elected. The Association appears to be in a sound condition, and to have awakened considerable interest in the cause of pharmacy throughout the State. It resolved at the last meeting to commence with the formation of a library.

PHARMACEUTICAL ASSOCIATION OF ALLEGHENY COUNTY.—At a meeting of the pharmacists and druggists of Allegheny County, Pa., held on Thursday evening, September 28th, 1871, at the Western University building, in Pittsburg, Pa., a permanent organization was effected, to be known as the "Pharmaceutical Association of Allegheny County," by the election of the following named officers, viz.: Henry P. Schwartz, President; Newton McClarran and Harrison S. Lutz, Vice-Presidents; Joseph Abel, Recording Secretary; Alfred J. Rankin, Corresponding Secretary; Wm. H. Brill, Treasurer; James R. Clark, M. J. McGann and F. H. Eggers, Executive Committee.

The President afterwards appointed Committees on Ethics, Certificate of Membership, on Pharmacy. The regular meetings will be held, at the Western University building, on the evening of the first Thursday of each month.

THE LOUISVILLE COLLEGE OF PHARMACY has organized its school, and will commence, during the month of November, its first course of lectures with the following faculty: Thos. E. Jenkins, M. D., Professor of Materia Medica; L. D. Kastenbine, M. D., Professor of Chemistry; and C. Lewis Diehl, Professor of Theory and Practice of Pharmacy.

THE ST. LOUIS COLLEGE OF PHARMACY, at the general meeting held in September, elected the following officers, namely: William N. Crawford, President;

Theodore Kalb, Vice-President; Edmund P. Walsh, Secretary; Charles L. Lips, Treasurer, and Arthur F. Hollister, Enno Sander, M. W. Alexander, Charles Habicht and J. C. Kirkbride, Board of Trustees. The following-named gentlemen were elected the Faculty of the College—the lectures to commence about the middle of November: Hugo Krebs, Professor of Chemistry; Enno Sander, Professor of Materia Medica; Justin Steer, Professor of Pharmacy.

NEW YORK COLLEGE OF PHARMACY.—At a meeting held Oct. 19th Mr. H. A. Cassebeer, Jr., was elected Secretary in place of Mr. E. L. Milhan, resigned.

A Code of Ethics was then discussed and adopted, as follows:

Preamble.—The members of the College of Pharmacy of the City of New York, considering it necessary that some mutual understanding should exist in regard to the moral principles guiding them in their profession, hereby agree upon the following Code of Ethics:

1. We accept the U. S. Pharmacopœia as our standard and guide for all official preparations, and recognize a variance from its rules only in exceptional cases, where sufficient authority has proved some other process more reliable to attain the same end.

2. Although not a legitimate part of our business, custom and the necessity of the times warrant us in keeping on hand the patent medicines of the day; yet we earnestly recommend the propriety of discouraging their employment when called upon for an opinion of their merits.

3. We discountenance all secret formulæ between physicians and pharmacists, and consider it our duty to communicate such to each other when required.

4. We distinctly repudiate the practice of allowing physicians a percentage on their prescriptions; and we agree not to have a secret understanding with physicians, to the pecuniary detriment of the public.

5. We will endeavor, as far as lies in our power, to refrain from compromising the professional reputation of physicians, and we expect the same comity from them.

6. Since the professional training of the pharmacist does not include those branches which enable the physician to diagnose and treat disease, we should, in all practicable cases, decline to give medical advice, and refer the applicant to a regular physician.

7. The growing demands of the age require that those who follow the profession of pharmacy should be educated up to a higher standard. Therefore, we consider it our duty, individually and collectively, to encourage the advancement of knowledge in our profession generally, and particularly by stimulating our assistants to attend the lectures of the College, and by aiding and assisting them to do so.

8. Considering it expedient that some rule be adopted to enforce the provisions of our Code, we hereby agree, if any just cause of complaint be found against a member of this College of having violated the rules or the spirit of our Association, to bring the case before a special or the next general meeting of the College, when the accused, after being heard in his own defence, may be expelled by a two-thirds vote.

CINCINNATI COLLEGE OF PHARMACY.—At a meeting of pharmacists, held, on the 20th of October, in the lecture-room of the Cincinnati Dental College, Professor Edward S. Wayne was called to the chair, and Mr. Wm. H. Adderley appointed Secretary *pro temp.* A committee, consisting of Prof. Wayne and Mr. Tully, was appointed to select suitable rooms.

At a second meeting, held Oct. 24th, it was resolved not to re-organize under

the charter granted in 1850, but to form a new society. A constitution and by-laws were adopted, and the following officers elected: President, Prof. E. S. Wayne; Vice-Presidents, J. F. Judge and A. Fennel; Recording Secretary, Wm. H. Adderley; Corresponding Secretary, A. J. Tully; Treasurer, W. H. Negley; Trustees, Ayers, Taxis, Schmidt, Reum, Koehler.

THE CALIFORNIA PHARMACEUTICAL SOCIETY held its third annual meeting last month.

After the reading of the reports of committees, the following officers were elected: President, J. A. Bauer; Vice-Presidents, E. Painter and Wm. Geary; Recording Secretary, W. E. Mayhew; Corresponding Secretary, W. T. Wenzell; Treasurer, Wm. J. Bryan; Executive Committee, J. G. Steele, John Calvert, W. E. Mayhew, Wm. Simpson and W. T. Wenzell.

Reports were submitted on a number of queries, from which it appears that no attempt has been made toward the manufacture of cod liver oil in California, also that rhubarb is not cultivated there. Mr. Calvert reported in favor of reducing the strength of fluid extracts to one-half of their present pharmacopœial standard.

Mr. Wenzell read a paper on "Ergotina," describing at some length the intricate processes necessary for its extraction.

On motion of Mr. Searby, the following was adopted:

Resolved, In view of the recent calamity which has befallen the city of Chicago, we hereby appoint a Committee to solicit subscriptions from the members of this Society, the same to be forwarded to the Treasurer of the Chicago College of Pharmacy, for the immediate relief of any of their members who may have suffered by the recent fire in that city.

The Soliciting Committee are Messrs. Searby, Mayhew, Calvert and Steele.

Many expressions of sympathy for their brethren, and particularly for the Chicago College of Pharmacy, were advanced by various gentlemen present, and warmly endorsed by the meeting.

Minutes of the Pharmaceutical Meetings.

The first meeting of the session 1871-72 was held, at the College hall, on the afternoon of Tuesday, Oct. 17th, 1871.

Prof. Bridges presided, and in the absence of the Register, S. Mason McCollin was appointed *pro tempore*.

It being the usual time for the annual election of Register, Mr. Clemmons Parrish was unanimously elected for the ensuing year.

Prof. E. Parrish presented, on behalf of S. Maw, Son & Thompson, of London, one of their improved suppository moulds, and also suppositories made in the same. These weigh only 15 grains, the usual rectum suppository in this country weighing 25 grains. Some remarks were made by members present on the relative advantages of suppository moulds which are solid and those which open by a hinge, as in the case of Maw's. In the use of the solid moulds, perfect refrigeration by ice-water should *precede* the pouring in of the melted cacao

butter, and where this is the case there will seldom be any difficulty in dropping out the hardened cone after a very few minutes.

A mould was also exhibited, made by A. H. Wirz, of this city, which opens near the apex of the cone, so as to allow pressure upon the point of the suppository in its removal. This was objected to by those who had tried a similar device, as blunting the end of the suppository, and often proving ineffectual in its removal. Prof. Parrish exhibited an improvement on the ordinary method of adjusting the solid moulds in the refrigerating tray; twelve of the moulds are soldered on to a tin diaphragm, which is suspended near the top of the vessel containing the ice, and four handles being soldered on the opposite side of the diaphragm, by inverting and dropping it the suppositories may all be dropped out together. This obviates the necessity of handling the moulds singly, and facilitates the rapid preparation of suppositories.

He also exhibited a material made of glycerin and gelatin, which possesses a consistence suited to suppositories and is at the same time soluble in the fluids of the vagina or lower intestine. It is used in England in certain cases in which a soluble suppository would be preferable to an oily one. Two disadvantages have been observed in this material. It appears rather elastic and flexible for easy introduction by pressure, and where tannin is present in the medicinal ingredients, it is liable to form the insoluble and nearly inert tannate of gelatin.

Suppositories being under discussion, several methods of introducing extracts into the cacao butter were spoken of. Charles Bullock stated that it was the practice of some to thrust a small cylinder into the plain suppository, on withdrawing which an opening is left, into which the medicinal ingredient can be dropped. This is not, however, a desirable method, in view of the fact that the extract is not in this way diffused, but remains in a comparatively insoluble mass. Prof. Parrish exhibited some suppositories of extract of hyoscyamus which he had prepared by a process communicated to him by Prof. Israel J. Grahame. The extract, being softened with a little water, is triturated on the ointment slab with the melted cacao butter, as if an ointment were to be made. It is then returned to the capsule, and *very gently* warmed, if necessary, before being poured into the moulds. Great care is necessary not to render the cacao butter too fluid, in which case the suppositories poured last would contain an undue share of the extract. Prof. Grahame has used a similar process very successfully in making assafœtida suppositories. James T. Shinn spoke of this process as according substantially with his own in manipulating with the extracts.

Prof. Maisch exhibited specimens of cundurango, and gave a history of its introduction into the States; also mezquite gum, and the fruit of the tree, *Algarobia glandulosa*, brought from Western Texas; also the seeds of *Strychnos potatorum*, obtained from the Curator of the Pharmaceutical Society of London, and which prove to be identical with those he exhibited and experimented upon at a previous meeting; also the "Japanese Cinnamon Root," which is believed to be used to adulterate powdered cinnamon.

Specimens were presented, from Henry Cramer, of a bark believed to be that of *Dicypillium caryophyllatum*, or South American Clove Tree; also a plant of *Viscum album*, Mistletoe, found in the midst of a case of imported herbs.

Editorial Department.

THE SUFFERING PHARMACISTS OF CHICAGO AND THE NORTHWEST.—The disastrous conflagration of the 8th and 9th of October, which laid the entire business portion of Chicago in ashes, destroyed a large number of dwellings and rendered about 100,000 people homeless, has fallen very heavily upon the Chicago College of Pharmacy and upon all the pharmacists located in the burned district, which embraces the entire North Division and the South Division north of Harrison street, the West Division having suffered comparatively little. Many of our pharmaceutical brethren have lost all—their business and their home; the result of years of unceasing anxiety and toil has been swept away by that dire calamity, and the sufferers have to begin life anew upon the ruins of their once cherished homes. The tearful eye looks with sadness upon the heaps of ashes, all that is left now of thousands of cheerful homes and thriving business places; but at the same time a hope is kindled in the breast, that the future may again bring days of bright sunshine, and the buoyant energy of those pioneers in the Western prairies dictates that the young giant of the shores of Lake Michigan shall rise again. A generous charity has opened the hands and pockets of all more fortunate cotemporaries; quiet and unpretending have been the offerings of the druggists and pharmacists in the different sections of our country to assist their unfortunate confreres of Chicago; whether located in cities, towns or villages, they cheerfully extend their helping hand; even the shores of the Pacific, though separated by thousands of miles, are vying with the older sections, and have already sent substantial aid. As Chicago will rise again from her ashes, so will her druggists and pharmacists again resume their position among the most enterprising and energetic of the fraternity, and the now bleeding wounds will gradually heal.

In the meantime, it is to be hoped that the generous and more fortunate members of our profession will not relax their efforts to lighten the misfortune of their suffering brethren in Chicago.

The opportunity to do good by voluntary contributions, the offering of loans, the extension of credit, &c., is probably also offered in those districts of Michigan, Wisconsin and Minnesota which have, about the same time, been visited by prairie and forest fires, destroying a number of villages and towns, and with them, undoubtedly, the property of many pharmacists. We repeat, do not relax the efforts to lighten the misfortune of our suffering brethren.

PHARMACEUTICAL EDUCATION AND THE MICHIGAN UNIVERSITY SCHOOL OF PHARMACY.—The report of the nineteenth annual meeting of the American Pharmaceutical Association published in our last number, contains a full account of the action relative to the delegation from the School of Pharmacy of the Michigan University; the delegate was not received as such, although he was admitted as a member.

We have received a reprint from the Michigan University Medical Journal and Pharmaceutical Quarterly, wherein an attempt is made to criticize this action of the Association; but this attempt is quite abortive, since the main

question at issue is completely dodged therein. The question was *not* whether a good scientific education, acquired previous to entering a pharmacy as apprentice, was desirable or not; but the question *was* whether, without shop training, any institution of learning is warranted to confer upon a young man a pharmaceutical degree; and it is such unwarrantable procedure that the Association entered its protest against, by refusing representation from the Michigan University School of Pharmacy.

Professor Prescott must know this, for he was present during the deliberations of the Committee to whom his case was referred; and he was present when, after the reading of his (Prof. P.'s) paper, Professor Maisch made substantially the same statement. The latter did not say that several Colleges of Pharmacy were *endeavoring* to furnish some laboratory facilities, but that several (we know of three) actually have done so.

According to the advertisement, the course in practical pharmacy at the institution in question comprises pharmaceutical operations (four hours daily) for four or five months, including work in specific gravity, distillation, volumetric tests of drugs and chemicals, and the preparation of sixty to seventy pharmacopœial *samples*. (*Italics our own.*) Now, we contend that all this is not equivalent to four years' practice behind the counter. While we acknowledge that the subjects of instruction of the Michigan School are very desirable subjects of the preliminary education of young men preparing themselves for the responsible duties of the pharmacist, we cannot withhold our conviction that all the facilities offered by the Michigan School, including the "working with willing classes at the blackboard during the mornings, from October to July," will be and are insufficient to make their graduates pharmacists, unless they have had the requisite practical training previous to entering upon their collegiate course there, or else seek the same after its completion. In the former case, they may well deserve the title "Pharmaceutical Chemist" conferred upon them; in the latter case, they will doubtless soon become convinced that though "Chemists," there was but a smattering of the "Pharmaceutical" connected with the real value of the title, at the time of receiving the same. Nobody can become proficient in any trade or science without practically working therein.

The deficiencies in the scientific education of our young pharmacists are well known to the Colleges of Pharmacy, and they are earnestly endeavoring to unite their efforts in the task to remedy them. In this movement we think that college will continue to participate, whose delegates, Professor Prescott says, "were first* and most persistent against us," and who "represent a school (Chicago) which has given but one course of lectures;" also the other college which "was most loudly toasted in the meeting and its banquets," and which "has suspended all instruction for the last two years, and is uncertain when it may resume lectures."

In view of all this, we hope it may be a long while before "a change of this clause of the Constitution will be demanded" and carried, so as to recognize delegates from any institution of learning professing to create pharmaceutical

* Professor Maisch, of Philadelphia, raised the first objection against his admission as a delegate.

chemists, or to confer similar titles without demanding pharmaceutical experience.

THE TRAFFIC IN DIPLOMAS, which we have repeatedly referred to in our columns, will probably hereafter cease to reflect upon the fair fame of the learned institutions of Philadelphia. That no degree could ever be purchased from the University of Pennsylvania is well known to all who are acquainted with its officers and teachers. Outside of the City and State, and particularly in Europe, this institution has often been confounded with the "University of Philadelphia." For the benefit of those of our exchanges who have charged the former with this nefarious traffic, we publish the circular lately issued by it, which contains also the law that will probably put a stop to this trade :

UNIVERSITY OF PENNSYLVANIA, *Philadelphia, Sept., 1871.*

Frequent applications are made to the authorities of this University by gentlemen who desire to obtain Honorary Degrees. As these applications are made in evident ignorance of the rules which govern the University in conferring these degrees, as well as the law of the State of Pennsylvania on the subject, it has been thought best to reprint the existing regulations :

[*Extract from the Statutes of the University.*]

OF HONORARY DEGREES IN DIVINITY, LAW, ARTS AND MEDICINE.

1. These may be conferred either at the instance of the Faculty, or in pursuance of a resolution of the Board of Trustees; but no such Degree shall be conferred unless the *mandamus* ordering the same to be signed by two-thirds of the whole number of Trustees, nor unless the candidate shall have been nominated at the Board three months previously to taking the question on conferring the degree.

2. The question on conferring an Honorary Degree shall always be decided by ballot, and the candidate must receive a unanimous vote.

AN ACT TO PROHIBIT THE SALE OF ACADEMIC DEGREES.

SECTION 1. *Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania, in General Assembly met, and it is hereby enacted by the authority of the same,* That it shall not be lawful for any University, College, or other institution incorporated under the laws of this State with power to grant Academic Degrees, honorary or otherwise, to confer the same upon any person or persons upon the payment or promise of payment by any person in consideration thereof; and any person knowingly signing a diploma or other instrument of writing purporting to confer an Academic Degree when such consideration has been paid or promised to be paid, shall be guilty of a misdemeanor, and on conviction thereof be sentenced to pay a fine not exceeding five hundred dollars, and to undergo an imprisonment not exceeding six months, or both, or either, at the discretion of the Court.

Approved May 19th, 1871.

After the above was in type we received the New York *Tribune* of October 25th, in which a lengthy account is given of the negotiations for the purchase of a diploma from the Eclectic Medical College of Philadelphia.

COCA, COCOA, CACAO.—The products of these three plants are very often confounded with each other in consequence of the similarity of their names; aside from this, there is no other resemblance either between the plants, or their products used in medicine, the arts or the cuisine. In the March number of this Journal we published a review of Wittstein's handbook of secret medi-

cines, wherein a nostrum was stated to be composed of the powder and the extract of coca. Some of our contemporaries improved on that report and made the nostrum from cocoa. The oil of theobroma, at present the favorite excipient for suppositories, is very frequently called cocoa butter, perhaps because some well known dietetic preparations of the so-called chocolate nuts have been misnamed cocoa.

Erythroxylon Coca, Lamb., grows in South America and belongs to the order erythroxylaceæ. The leaves are used by the Indians and are capable of sustaining their strength, without any other food, on long and tedious journeys and during great exertions.

Cocos nucifera, Lin., is a palm, growing in tropical countries and furnishing the well-known cocoanut with its refreshing milk, and yielding the cocoanut oil or cocoanut butter, a solid white fat largely used in the manufacture of candles and soap.

Theobroma cacao, Lin., and a few other species of the natural order of Byttneraceæ, natives of Central and South America, produce seeds, known in commerce as chocolate nuts. The fat expressed from them is the officinal cacao butter, the mass left in the press constitutes the main ingredient of chocolate.

STRYCHNOS POTATORUM.—On page 241 of this volume of the Journal we described among others, the seeds of a species of strychnos, which a year ago arrived at New York as ballast in a ship from the East Indies. We concluded from our investigations, that they belonged to *Strychnos potatorum*, Lin. fl., and we are now enabled to verify this opinion. Professor W. H. Chandler, of the Lehigh University at Bethlehem, Pa., handed us a parcel of authentic seeds of that plant from Mr. James Collins, curator of the museum of the Pharmaceutical Society of London; the seeds received are identical with those mentioned before. We are under obligations to both gentlemen for the kindness shown us.

CUNDURANGO.—We have hitherto refrained from giving to our readers the glowing accounts of the efficacy of this wonderful humbug, simply because we looked with suspicion upon its introduction into the list of standard materia medica as an unfailing specific in cancer. The most surprising feature of its history has been the manner in which the State department has been used as the tool to advertise it as a nostrum. That it does not cure cancer has been proven by the medical profession of Washington, D. C.; several of the patients who improved under its use, have subsequently convalesced into the grave, and the others are about the same as before they commenced using it.

The first authentic news of its origin which we have seen, is contained in the communication from Mr. Dan. C. Robbins, published elsewhere. From Dr. Fred. Hoffmann, of New York, we have received substantially the same information, accompanied by some specimens, one of which is identical with a specimen received from Professor Jos. Carson, of this city, which had reached him from the State department through Prof. Henry, of the Smithsonian Institution, and was, therefore, some of the original cundurango that reached this country. Dr. Hoffmann informs us that almost weekly, shipments of this drug arrive at

New York from Guayaquil, Ecuador, many of which are not genuine ; they may probably be identical with the "big fruit" and "little fruit" mentioned by Mr. Robbins. The reduction in price from \$100 to \$30 per lb. may be partly due to the increased supply, partly to the counterfeit article. We presume that the market will soon be "overstocked" and remain in that condition.

STUDENTS MATERIA MEDICA CABINETS.—A practical and sound knowledge of the articles of materia medica can only be obtained by the repeated examination of the drugs, and the zealous student usually makes for himself, on a small scale, collections of specimens of the most important articles, presenting their characteristics. We were pleased, on learning recently, that the late John D. Owen, while a student of the Philadelphia College of Pharmacy made such a collection, and left it at his boarding house for the use of pharmaceutical students coming there after him. The rooms have again been engaged by members of the present class, and they propose to add to this collection and leave it again for the benefit of those who may come to the same place next year. A very laudable object, deserving of imitation.

THE INFLUENCE OF FORESTS UPON CLIMATE is generally acknowledged, but their preservation, or rather their judicious culture has as yet received scarcely any attention on this continent. The scarcity of timber in districts which, not many years ago, furnished large quantities, and the necessity of obtaining suitable material from more distant regions, is sufficient proof thereof. The traveler often notices mere sickly remnants of what once used to be large forests, and occasionally a range of barren rocky hills may be seen with no other vegetation besides briars, huckleberries, ferns and other noxious weeds, with perhaps an occasional forest tree of dismal aspect and unhealthy growth in its lonely position. The proprietors of a large tract of land in Schuylkill County, Pa., have engaged a gentleman who has made forest culture his special study, and we have been told that they are highly satisfied with the pecuniary and general results obtained in a few short years. The subject, however, is of national importance and deserves the careful attention of all. The following, which we copy from the *Pharm. Journal and Transactions of Sept. 2d*, claims, for the above reasons, the attentive perusal of every citizen :

The influence of forests upon the climate of a country, and the relation of the vegetation to the local peculiarities of a district, has often been observed. A fresh illustration is to be found in the Italian province of Oneglia, where for the last two years the olive crop has suffered from drought. It has been noticed that in recent years the rain that has fallen on this coast has been much less in quantity than formerly ; and olive plantations, which were considered safe and lucrative property, are now looked upon as a bad speculation. The want of rain is generally attributed to the reckless way in which the mountains above the oil range have, especially of late years, been cleared of the forests which clothed them. From time immemorial the wood has been cut without any system of replantation ; but, until about twenty years ago, there being no very great demand, and the mountains being utterly without roads, the quantity brought down to the coast was not large. Since that time the country has been opened up to a certain degree by roads, there has been an enormously increased demand for beech and oak for shipbuilding and chestnut for housebuilding, and some of the woods have been absolutely swept away without a tree being left. A society has been formed, having for its object to stop these reckless cleanances, and to induce proprietors to replace, by degrees, the timber in those positions which do not allow of tillage.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Physician's Dose and Symptom Book; containing the doses and uses of all the principal articles of the *materia medica* and official preparations; also tables of weights and measures, rules to proportion the doses of medicines, common abbreviations used in writing prescriptions, table of poisons and antidotes, index of diseases and treatment, pharmaceutical preparations, table of symptomatology, outlines of general pathology and therapeutics. By Joseph W. Wythes, M. D., &c. Tenth edition. Philadelphia: Lindsay & Blakiston. 1871. 16mo, 277 pages. Price, in cloth, \$1.00; in leather, tucks, with pockets, \$1.25.

That the work before us, which is evidently intended as an aid to the student and a pocket companion for the general practitioner, has been well received by the medical profession, is evidenced by the various editions through which it has passed, the last one being enlarged by several useful additions. In some instances the author has sacrificed clearness to brevity. For instance, on page 12 we find, as the antidote to alkalies and their salts, the vegetable acids mentioned; alkalies and their carbonates are intended, for acids would certainly not be advised against excessive doses of nitrate of potassa, for example. Under the head of opium and other narcotics the antagonistic effects of opium and belladonna deserved to be mentioned. *Nux vomica* and *strychnia* are not enumerated among the poisons.

The word *aconitum* (page 37), instead of *aconitia*, is doubtless an error attributable to oversight. On page 61 it is stated that *Cocos butyracea* is the plant which affords palm oil and cocoa butter, and that this "is used as an excipient for suppositories and medicated pessaries." Here the author confounds two entirely different fats. *Cocos nucifera*, Lin., yields palm oil, sometimes also called cocoa butter, which, however, is perhaps never used in medicine in this country. The seeds of *Theobroma cacao*, Lin., the so-called chocolate nuts, furnish cacao butter (often incorrectly termed cocoa butter), which constitutes the base of suppositories.

Aside from these few imperfections the book will prove very useful to those for whom it is intended.

Medical Education in America; being the annual address read before the Massachusetts Medical Society June 7, 1871. By Henry J. Bigelow, M. D., Professor of Surgery in Harvard University. Cambridge: Welch, Bigelow & Co. 1871. 8vo, 83 pages.

An excellent essay on the subject of medical education. The facilities of European universities are described, and their requirements compared with the actual and imperative demands of this country. The address closes with an account of the changes adopted in the medical instruction in Harvard University. We heartily commend this book to the careful perusal of every friend of progress in the instruction of medical and also pharmaceutical students; for much that we find mentioned here applies with equal force also to the young pharmacist.

Essentials of the Principles and Practice of Medicine. A handbook for students and practitioners. By Henry Hartshorne, A. M., M. D., Professor of Hygiene in the University of Pennsylvania, &c. Third edition. Thoroughly

revised. Philadelphia: Henry C. Lea. 1871. 12mo, 487 pp. Price, in cloth, \$2.38; half-bound, \$2.63.

After an introductory chapter entitled *Systems of Medicine*, the author treats in Part I of the *Principles of Medicine*, and then in Part II, on about 300 pages, of *Special Pathology and Practice*. The diseases are conveniently classified; symptoms, causation, diagnosis, prognosis and treatment are carefully considered; the whole being marked by briefness but clearness of expression. An enumeration of the numerous remedies proposed by different practitioners for the various diseases has been carefully avoided, the author mainly relying upon the practical experience gathered by himself and others at the bed-side. Over 250 formulas are appended, intended as examples merely, not as guides for unthinking practitioners. A complete index facilitates the use of this little volume, in which all important remedies lately introduced, such as chloral hydrate and carbolic acid, have received their full share of attention.

The Druggist's General Receipt Book; comprising a copious veterinary formulary; with numerous recipes in patent and proprietary medicines, druggists' nostrums, &c.; perfumery and cosmetics; beverages, dietetic articles and condiments; trade chemicals, scientific processes, and an appendix of useful tables. By Henry Beasley. Seventh American, from the last London edition. Philadelphia: Lindsay & Blakiston. 1871. 8vo, 497 pages. Price, \$3.50.

The scope of this work is indicated by its title. It makes no scientific pretensions, but aims to be thoroughly practical. The information it imparts is such as will be of great value to the pharmacist and druggist, but few of the receipts being obtainable from the standard pharmaceutical works of more scientific claim. The language is terse and clear, and the general "getting up" of the book quite creditable.

Clinical Examination of Urine; with a description of a convenient apparatus for its speedy analysis. By Reuben A. Vance, M. D. Reprinted from the *Medical World*, Sept., 1871. New York: Wm. Baldwin & Co.

! This little pamphlet describes, upon 10 pages, the tests to be applied by the physician for ascertaining approximately the most important constituents of morbid urine.

On Syphilitic Epilepsy. By Reuben A. Vance, M. D., &c. Reprinted from the *American Journal of Syphilography and Dermatology*, July, 1871. New York: F. W. Christern. 8vo, 15 pp.

The essay relates the experience of the author, who is attending physician for diseases of the nervous system at the out-door department of Bellevue Hospital.

OBITUARY.

DR. SCHACHT died in Berlin, Germany, on the 20th day of June last, after a long and severe illness. The deceased was a pharmacist, and had served for a long time in Prussia as a member of the professional commission for pharmaceutical affairs.

DR. G. C. VON KAISER, professor of chemistry and technology in the University and in the Polytechnic Institute at Munich, Germany, died there August 28th, in the 69th year of his age. He had been educated a pharmacist, and acted as assistant to Prof. Buchner, Sen., when a professorship was tendered him at the Chirurgical Institute at Landshut, whence he was called to Munich.

THE AMERICAN JOURNAL OF PHARMACY

DECEMBER, 1871.

ON THE FLUID EXTRACT OF CHESTNUT

BY JOHN M. MAISCH.

Read at the Pharmaceutical Meeting of the Phila. College of Pharmacy.

In 1862,* Mr. G. C. Close called attention to the benefit of the leaves of the chestnut tree, *Castanea vesca*, Lin., var. *cana*, in whooping cough. I have since learned that the leaves are popularly used and highly valued in various parts of this country as a remedy for this disease, and that in some sections of New Jersey and also of the Southern States, peach leaves are employed for the same purpose; of the latter, Dr. F. P. Porcher† remarks: "A tea of the leaves is a favorite domestic palliative in whooping cough, and in most pectoral affections."

The favorable effects of chestnut leaves in the disease mentioned has since been confirmed by the observations of several physicians, and from cases which have come under my notice, their use appears not only to frequently alleviate the severity of the attacks, but even to break the paroxysms, leaving merely a cough attended with mucous expectoration, which gradually yields to ordinary expectorants. Chestnut leaves, however, are not a specific against pertussis, though its effects are perhaps beneficial in a majority of cases. In 1868, during the prevalence of whooping cough in this city, two of my children being attacked with it, derived no benefit whatever from their use, nor had bromide of ammonium and hyoscyamus any good result; but the spasms were allayed by assafoetida, which was given in the form of syrup prepared by the formula published on page 396 of this volume.

* Proceedings Amer. Pharm. Assoc., p. 236. Amer. Journ. Pharm., 1863, p. 66.

† Resources of the Southern Fields and Forests, p. 198.

this city, at whose request I have collected chest-
has used this remedy quite extensively, at first
n, one-half to one ounce to the pint, which was
ubsequently I prepared a syrup, and a fluid
paration being greatly preferred by him on ac-
se required, which is from a few drops to a tea-
the age of the patient and the severity of the

ne at which the leaves are collected must be of
nce upon whatever medicinal properties they may
collected them from the beginning of July, when the
ly expanded, until the beginning of October; when
n the fall, the green leaves only were selected. It had
ention to use the leaves from the different months sepa-
n the view of having their relative efficacy tested; but the
becoming unexpectedly large, the various collections had
y to be used indiscriminately. However, as far as the observa-
ions could be made, they appeared to be rather in favor of the fall
collections made in September and early in October.

Chestnut leaves contain considerable tannin; their taste is not un-
pleasant, merely mildly astringent, without any decided bitterness. The
remedy is therefore readily taken by children, whether in the form of
sweetened infusion, syrup or fluid extract containing sugar. In pre-
paring the fluid extract, the use of diluted alcohol as the exhausting
menstruum was not attended with as satisfactory results as that of
water, which was therefore employed. A purely saccharine fluid ex-
tract was of too thick a consistence, in consequence of the large
amount of extractive matter dissolved by the water. After several
experiments a small quantity of glycerin was employed and the
sugar correspondingly reduced, when a more attractive preparation of
the consistency of a dense syrup was obtained.

One difficulty in the management of chestnut leaves in the prepa-
ration of fluid extract is their bulkiness and flexibility; dried in the
air, they cannot with any degree of facility, be reduced to a powder,
either in the mortar or hand mill, so that their exhaustion cannot be
effected by percolation. After cutting and bruising them, they are
covered with hot water in an enamelled kettle and digested over
night, when they are expressed; the digestion and expression are
repeated twice with fresh portions of water, and the three infusions,

each one mixed with glycerin or a portion of the sugar, evaporated to a small bulk when they are mixed and the evaporation continued until the proper measure is obtained; it is then set aside for several days and decanted from the small quantity of sediment.

The proportions used are as follows: Chestnut leaves, dried, cut and bruised, sixteen troyounces; glycerin five troyounces (f̄iv); sugar eight troyounces; hot water a sufficient quantity; the fluid extract to measure sixteen fluidounces.

ELIXIR QUINIÆ, FERRI ET STRYCHNIÆ PHOSPHATIS.

Editor American Journal of Pharmacy:

Allow me to present to your readers the following formula, which furnishes a very agreeable tonic, and not so intensely bitter as solutions of either of the alkaloids themselves:

R. Quinæ,	grs. xxx,
Ferri Pyrophatis,	grs. 60,
Strychniæ,	gr. i,
Acidi Citrici,	grs. 30,
Alcoholis,	f̄ii,
Syrupi,	f̄iiss,
Aquæ Aurant. Flor.,	f̄iiss,
Glycerinæ,	f̄ii,
Aquæ Destill., q. s. ad.	f̄viiss,
Aquæ Ammon.,	q. s.

Dissolve the iron in f̄iiss of water; mix the syrup, glycerin, and orange-flower water, and add to the solution of iron; then add f̄iiss of alcohol. Dissolve the quinia, with 5 grs. citric acid, in ʒi water and ʒi alcohol, by the aid of heat; then mix with the iron and syrup solution. Dissolve the strychnia in the remainder of the alcohol, and add to the other solution; then add the remainder of the citric acid, in powder, with enough liquid ammonia, until it becomes clear, using a little heat after the acid is added. The quinia solution must be of the same temperature as the iron when added, also with the others when added. This gives a beautiful straw-colored elixir, representing about 1 gr. sulphate of quinia, 1 gr. pyrophosphate iron, and $\frac{1}{10}$ th gr. strychnia in the fluid-drachm.

Yours, &c.,

CHAS. SHIVERS, JR.

ON THE RELATIONS OF THE SEVERAL CLASSES OF DRUGGISTS AND PHARMACISTS TO THE COLLEGES OF PHARMACY.

BY PROF. E. PARRISH.

(Continued from page 485.)

A comparison of the facilities for realizing the advantages of our course of instruction, as furnished by the average wholesale and the average retail store, will show that in some respects the former have the advantage. It is notorious that the variety of crude drugs kept by the retailer is rapidly diminishing, and in the examinations by specimens candidates of this class are at a disadvantage. Few of them have seen characteristic specimens of such important drugs as jalap, sarsaparilla, cinchona, pareira, cantharis, or even gentian and colombo, until they have been shown to them in connection with a scientific course on *Materia Medica*. Requiring them only for the limited demands of a dispensing trade, the pharmacist buys most articles of this description in powder, of one or more grades of fineness, according as they are needed for percolation, or are sometimes prescribed in fine powder. All the chemicals and most of the extracts and fluid extracts are bought equally by the wholesale and retail dealer, and, strange to say, even pills are now so extensively produced by those who make this branch of pharmacy a specialty, that in the dispensing stores the art of pill-making is being cut down almost entirely to the preparation of extemporaneous prescriptions.

The leading objection to giving apprentices in wholesale stores the opportunity to compete for the diploma, is founded on the assumption that it implies in its possessor a qualification to compound prescriptions; and, as this art can only be acquired by long experience, it is alleged that no one should be eligible to graduate until he has served an ample term in its actual practice.

It may be said in reply to this that the diploma does not really guarantee the fitness of its possessor for this duty. Many who graduate from retail stores have had but limited practice in compounding prescriptions. In some stores this duty is rarely entrusted to any but graduates; in others, the number and variety of prescriptions is too small to furnish a fit preparation for the prescription business as conducted in city dispensing stores, where extemporaneous pharmacy is a most difficult and complicated pursuit.

Add to this, that any examination which is practicable must give, at best, a very insufficient assurance of a thorough acquaintance with this art, and we see that the diploma, even if withheld from all but those who had served the requisite period in a dispensing store, could not properly be construed to imply more than the professors and trustees of the College can guarantee—such a knowledge of our business as entitles the graduate to assume the responsibilities of its practice, subject to the limitations and conditions which the circumstances of his education supply.

If the graduate seeks a place, the employer, of course, informs himself as to the practical training he has had in connection with his College course. No sensible man will take it for granted that a graduate trained in a wholesale store is a good prescriptionist, any more than that one who has been for two or three years behind a dispensing counter would be competent to select the stock, sell the goods, and execute the orders in a wholesale house.

Viewing the diploma as a testimonial to industry and zeal in the scientific study of drugs and the processes of their preparation, and to such practical proficiency as would result from compliance with the known requirements of the College, the employer judges of an applicant by taking into account all the circumstances of his education and of his natural and acquired traits.

The same general principles apply to the case of a graduate exhibiting a diploma as a passport to public confidence when embarking in business on his own account. The inquisitive and exacting public, and the physicians who are to be associated with him in his work, will take into account his previous history and all his testimonials, and judge these, his diploma included, by the standard of common sense and experience.

From the nature of the case, a diploma goes only part way—an important part—in establishing the business qualifications of its owner. As far as it goes, we mean that it shall be truthful, and that no student in this school, who has not faithfully employed all his advantages for acquiring knowledge and skill in his profession, shall possess it.

To solve the question I have stated, as to whether students from wholesale stores should be entitled to compete for the diploma, it has been proposed to issue two kinds of diploma—one for the druggist and the other for the pharmacist. In the event of adopting this

method, the question would arise whether the examinations should be varied, or the kind of diploma be dependent entirely on the nature of the shop training, all the students attending the same course and being subjected to the same examinations. It would certainly be more practicable to change our existing policy if, in drawing the line so as to exclude a certain class, we could offer them an alternative which, in many instances, would so exactly meet the case. It must be admitted, however, that our experience has by no means justified the assumption that students from stores classified as wholesale, are necessarily less able to meet the requirements of our Examining Boards, even in regard to questions pharmaceutical, than those from numerous stores which are most emphatically retail. In determining which diploma a candidate should be entitled to receive, experience would doubtless soon dictate a wise policy; but a delicate question would soon arise as to whether the two diplomas should take equal rank, or whether that awarded to the wholesale druggist should be subordinate to that which attests the qualifications of the graduate in pharmacy; in either case it would be obviously proper to make the graduate druggist eligible to the diploma in pharmacy, after a suitable lapse of time, on producing evidence of experience in dispensing.

Having adverted to one of the modes suggested for solving the question before us, I next proceed to state that which commends itself to those who would avoid the confusion anticipated from creating two distinct classes in the alumni of the College, namely, to supply as thorough a practical course in pharmacy as our present circumstances will allow, and to increase and develop this until it shall include sufficient practice on the part of the students from wholesale stores to remove all objections to the issue to them of the same diploma as to those who have had the required practice in a dispensing store.

It will be granted that immense advantages are gained by systematic instruction over the irregular practice of a shop, dependent upon the accidents of business. Where the processes are arranged and directed to the single end of giving the greatest amount of profitable practice and instruction, more can be taught in a few months than would be acquired in years of experience in an ordinary shop. Yet it will not do to assert that such laboratory practice can be a complete substitute for the daily contact with physicians and the public which the dispensing counter affords; nor is it proposed as a substitute for this, only as furnishing such parts of a pharmaceutical educa-

tion as cannot be attained in a large class of stores whose students desire to avail themselves of the advantages and to secure the honors of the College. The laboratory would not substitute shop practice, but would furnish to those skilled in the commercial phases of the business, its chemical and pharmaceutical requisites, except, perhaps, those arising out of the practice of extemporaneous pharmacy, proficiency in which cannot be guaranteed by a diploma.

In this connection I may mention another proposal which is now under discussion. A degree of Doctor of Pharmacy seems appropriate to place our profession on a par with those of medicine and of dentistry. This has already been granted to a few distinguished pharmacists by the Maryland College of Pharmacy, but would seem well suited to designate all graduates in pharmacy who have devoted themselves creditably to the legitimate practice of their profession for a term of years. A title of this kind would hardly seem pretentious if held in reserve by the Colleges until their graduates had attained a well recognized professional standing, and the prospect of attaining it would be an honorable incentive to professional effort. By withholding this title the Colleges would be able to testify their disapproval of irregularities in practice which are sometimes encouraged by the public at large, and in awarding it they would often have it in their power to advance the reputation of pharmacists whose steady and plodding industry had failed of a just reward.

GLYCERIN IN PUTRID SORE THROAT.

BY J. DABNEY PALMER, M. D.

I have found this an invaluable remedy in putrid sore throat, as well as in many other affections. Not long since a case occurred in which its healing properties were fully tested. The patient, a little girl, seven years of age, had been suffering several days before I saw her, and the various remedies employed had made no impression on the disease. At it was with great difficulty and pain she swallowed, and her pulse being very weak and quick, it was important that the remedy adopted should possess healing, nourishing and antiseptic properties; and glycerin, possessing these properties, was administered in teaspoonful doses every six hours. The first dose caused some smarting, the second less, and before giving the third there was obvious improvement. The case was dismissed in three days.

Monticello, Fla.

ON THE ESTIMATION OF CITRIC ACID BY BARYTA.

Editor American Journal of Pharmacy :

Dear Sir.—As you published in the Nov. number of the American Journal of Pharmacy, an article of Mr. H. Kämmerer on the Determination of Citric Acid, I take the liberty to present you my claims for priority on the subject. In June, 1871, the *American Chemist* published an essay of mine on Citric Acid and Citrates, which covers the whole ground. I enclose a reprint of that article very slightly modified.

Aside of this, several of Mr. Kämmerer's statements do not agree with my observations. For instance, he states that citrate of baryta is insoluble in water; my experiments, repeated a number of times, showed plainly the contrary. He says also that the presence of vegetable acids does not interfere with the reaction, while I have observed that free acetic acid causes water to dissolve quite a large percentage of citrate of baryta.

I will leave to analytical chemists to decide on the availability for analysis of the compound proposed by Mr. K., which, he admits himself, contains sometimes 4, sometimes 7 equivalents of water.

For my part, I found *precipitated* citrate of baryta highly hygrometric, and for that reason proposed to always transform it into sulphate for exact determination.

The analytical part of my paper may not interest pharmacists, but you will see that I describe and publish the mode of preparing three new soluble combinations of citrate of bismuth, all more stable than the officinal salt. I mention also quite a new class of ferruginous compounds, such as soluble phosphate, hypophosphite, valerianate and arseniate of iron, which cannot fail to interest our profession.

Before closing, I would ask your kindness to insert in one of your next issues the following correction to a paper you published in April, 1871. On page 169, the third line from the bottom of page, instead of chlorate of potassa 348 grains, it should be chlorate of potassa 425 grains.

Yours respectfully,

J. CREUSE.

Brooklyn, Nov. 17, 1871

ON CITRIC ACID AND A NEW CLASS OF COMPOUND CITRATES.

By J. CREUSE*.

Having undertaken the study of the citrates as a class, and especially of those of the citrates where the acid is combined with more than one base, the first difficulty I met was how to evaluate citric acid without having recourse to the long and complicated process of an organic elementary analysis. I consulted the most recent publications and some eminent chemists without obtaining my desideratum, viz.: —How to evaluate citric acid free and combined, in the same direct manner as sulphuric or muriatic acid? The only thing then left for me was to try myself and find such a process, in which I succeeded, after many failures, including an explosion of citrate of silver.

This process is founded on the fact that while the alkaline citrates, the alkaline acetates and the acetate of baryta are freely soluble in alcohol sp. gr. 0.805 (63° Tralles), citrate of baryta is completely insoluble in that menstruum.

As the presence of alkaline acetates does not interfere with the reaction, this enables the chemist to evaluate citric acid in almost any shape, for free citric acid may be saturated by an alkali, alkaline citrates may be analyzed directly, and other citrates may be converted into citrate potassa without difficulty. This method presenting peculiar features, I will describe it in full.

If the citric acid to be evaluated is in the shape of an alkaline citrate, take from one to two grammes of the salt, dissolve in 10 to 20 c.c. of water, neutralize the solution with acetic acid if it is alkaline, with ammonia if acid; add a slight excess of a neutral solution of acetate baryta and twice the volume of the whole liquid of alcohol 95°. Allow to rest twelve to twenty-four hours; the citrate baryta, which is at first like a thick jelly, has by that time become denser and easier to wash. Transfer the whole to a filter; but as some of the precipitate always adheres to the sides of the vessel, it is recovered thus: pour into the vessel ten to fifteen c.c. of water, turn it round so as to wet all the parts where any salt adheres: citrate baryta being to a certain extent soluble in water is soon taken up; add then double the volume of alcohol and pour on the filter with the first product. This being repeated a second time, all the citrate baryta may be considered as collected on the filter. Wash this thoroughly with

* Reprint, communicated by the author.

alcohol 63° and dry at a moderate heat. The precipitate thus obtained represents all the citric acid in the shape of the citrate baryta; $3 \text{ Ba O.C}_{12} \text{ H}_5 \text{ O}_{11}$ with a variable proportion of water. But this salt is too hygrometric to give correct results if weighed directly; it is necessary to transform it into sulphate baryta. This is done without difficulty by burning the filter and heating the ashes and precipitate to red heat with sulphuric acid several times till a constant weight is obtained. This being ascertained, the weight of the citric acid may be calculated within two milligr.

If free citric acid is to be evaluated, a convenient quantity may be first saturated with a titered solution of caustic soda which gives generally a little more than the actual strength; the citrate soda may be then treated in the manner described above, which gives a result a little below the truth, and the average between the two will be within one milligr. of the truth.

If it is necessary to evaluate the citric acid of a non-alkaline citrate, soluble or otherwise, the analysis is conducted in this manner; a certain weight of the salt, from 1-5th to 2-5th grms. is heated carefully with a solution of caustic soda or potassa in excess; the heat must be applied long enough to decompose the salt thoroughly, but not enough to alter the citric acid. The liquid is then filtered, the filter washed as usual, and the liquor, exactly saturated with acetic acid, may be treated as an alkaline citrate. Care must be taken in this case, as in the others, that the saturation be as perfect as possible for an excess of acetic acid causes the citrate baryta to become soluble in alcohol, and an excess of alkali would precipitate some free baryta.

The solution of acetate of baryta used for these analyses may be prepared by treating pure diluted acetic acid by an excess of carbonate of baryta, heating to ebullition, adding some alcohol when cold, and filtering. This solution may be filtered to contain five p. c. of baryta, so as to know very nearly how much of it is necessary to precipitate the alkaline citrates thoroughly, without too much an excess of the reagent. The addition of alcohol insures its keeping unchanged for an unlimited period.

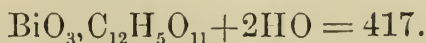
I need not describe here any analysis of citric acid, but I shall describe the analysis of some metallic citrates.

ANALYSIS OF CITRATE OF BISMUTH.

This citrate of bismuth is the salt obtained by precipitating acid nitrate of bismuth by an alkaline neutral citrate. It is insoluble in water, and may be obtained pure without difficulty; two grammes of this salt were taken and decomposed by an excess of caustic potassa, at a moderate heat. The precipitate of teroxide of bismuth well washed and dried was found to weigh 1.122 grms. The washings were collected together, saturated with acetic acid, treated by acetate baryta and alcohol, as already mentioned, and the citrate of baryta thus formed, yielded 1.674 of sulphate of baryta, which corresponds to 0.788 of citric acid. The balance 0.09 represents the equivalents of water and the loss. Hence, we may figure the result thus:

Teroxide of Bismuth	1.122	} or in other terms	{	1.170 = one equivalent
Citric Acid (anhydrous)	0.788			0.825 = one " "
Water . . .	0.086			0.090 = two " "
Loss . . .	0.004			
	<hr/>			<hr/>
	2,000			2,085

From this we may deduct for Citrate of Bismuth the following formula:—

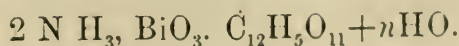


ANALYSIS OF THE DOUBLE CITRATE OF BISMUTH AND AMMONIA.

This salt is commonly called Ammonio-Citrate of Bismuth or soluble citrate of bismuth. It is obtained in two forms, in solution and in scales. In solution it may be either acid or neutral, in scales it is always acid on account of the loss of some ammonia during evaporation. It is very extensively used in medicine, but unfortunately is rather unstable in solution.

The analysis of the neutral salt offered no difficulty: 2.085 grms. of insoluble citrate bismuth were weighed in a small porcelain dish, a little warm water added, and a small piece of litmus paper allowed to float on it. Then a filtered solution of ammonia containing 0.26 of ammonia to the 100 measures was cautiously added, the mixture being stirred all the time. As the last drop of the 100 measures fell into the porcelain dish, the litmus paper, red until then, turned blue, and in the same time the liquid became perfectly clear.

This gives for the neutral citrate of bismuth and ammonia the following formula:



The analysis of the salt in scales was conducted in this wise: 2.302 grm. of the ammonia-citrate of bismuth in scales were dissolved in a little warm water, and a small piece of blue litmus paper made to float on the liquid. The paper turned red immediately. Then the same filtered solution of ammonia already mentioned was added carefully till saturation; twenty-five measures were necessary, which corresponds to one-half equivalent. This demonstrated already that the quantity of ammonia contained in the salt was $1\frac{1}{2}$ equivalent.

The liquid was then decomposed by caustic potassa in excess, with the help of a moderate heat, etc., precisely in the manner described for the analysis of citrate of bismuth. The following numbers were obtained: Teroxide of Bismuth 1.170, Citric Acid 0.823.

The proportion of ammonia being already known, the compound may be reconstructed thus:

Teroxide of Bismuth	1.170 = 1 equivalent	
Citric Acid	0.823 = 1	"
Ammonia	0.122 = $1\frac{1}{2}$	"
Water	0.180 = 4	"
Loss	0.007	
	<hr/>	
	2.302	

Or in chemical symbols: $1\frac{1}{2} \text{N H}_3, \text{BiO}_3, \text{C}_{12} \text{H}_5 \text{O}_{11} + 4 \text{HO} = 460.4.$

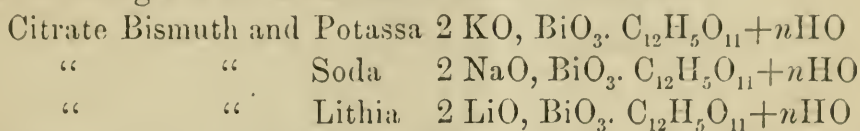
I must say that in this salt I believe the proportion of ammonia may vary slightly, according to the mode of evaporation; this proportion, however, cannot fall below $1\frac{1}{2}$ equivalent without causing a decomposition of the salt.

ANALYSIS OF THE DOUBLE CITRATES OF BISMUTH AND POTASSA, SODA AND LITHIA.

I believe these combinations have never been mentioned nor obtained yet by anybody. Yet, besides their interest in a chemical point of view, I think they will become of some importance to the medical profession, on account of their greater stability than the corresponding ammonia salt. For instance, a solution of citrate of bismuth and soda may be kept for weeks in warm weather without the addition of alcohol; the only change observable is the mouldiness common to all the diluted solutions of citrates, while a solution of citrate of bismuth and ammonia by the side of it is decomposed in twenty-four hours, letting the ammonia escape and forming a heavy insoluble sediment which contains almost all the bismuth.

The citrate of bismuth and soda, and the corresponding potassic salt are obtained easily by adding two equivalents of the caustic alkali to one of citrate of bismuth suspended in water, moderate heat being applied. They require, however, a little more care than the analogous ammoniacal combination, for any excess of potassa or soda is liable to precipitate oxide of bismuth, a decomposition that ammonia will not effect under any circumstances. The double citrate of bismuth and lithia may be prepared by adding two equivalents of carbonate of lithia to one of citrate of bismuth, heat also being applied.

The following are the formulas of these double salts :



Not having obtained these compounds in scales yet, I have not been able to determine the equivalent of water.

My study of the citrates is far from being completed, but I have collected facts enough to justify me in proposing to divide the different citrates in three classes.

In the *first class* I would place all the various *simple citrates*, where the acid is combined with one, two or three equivalents of one base. These are so well known, that little need be said about them.

The *second class* would comprehend the *double citrates*, that is those salts in which one equivalent of citric acid is combined with two equivalents of an alkali and one equivalent of another base, generally metallic. The simple citrate of that case is always less soluble than its double citrate. The various double citrates of bismuth mentioned in this paper may be considered as types of the second class, which contains a great number of them. Many are known and mentioned, such as ammonio-citrate of bismuth, of iron; potassic citrate of zinc, magnesia, etc.; their composition, however, is not stated anywhere, to my knowledge.

The *third class*, or *quadruple citrates*, as I propose to call them, is not so well known, the only one being, I believe, the soluble pyrophosphate of iron discovered in 1856 by E. Robiquet, my old friend and employer. These salts I consider as a combination in which an alkaline neutral citrate plays the part of a base and a peculiar metallic salt the part of an acid. I have abundant facts to prove the correctness of my theory, but I will only mention that I have already discovered the following new combinations which I place in the third

class of citrates: Phosphate, hypophosphite, valerianate, arseniate sesquioxide of iron and several others, with citrates of potassa, soda, lithia and ammonia.*

All these salts are very soluble; they all have a greenish color and present no taste of iron.

GLEANINGS FROM THE FOREIGN JOURNALS.

BY THE EDITOR.

Composition of Crude Cream of Tartar.—J. C. Sticht has analyzed a number of samples of light-colored and red crude tartar, obtained from Spain, Germany, Austria and Italy, and found its composition to vary exceedingly. Besides organic and other foreign matters, amounting to from 3.64 to 22.20 per ct., the light-colored tartar contained between 34 and 88.36 per ct. bitartrate of potassa, and between 7.80 and 52 per ct. tartrate of lime. The dark-colored tartars yielded, besides from 6 to 56.40 per ct. coloring matter and other impurities, from 3.60 to 90 per ct. bitartrate of potassa, and from 4 to 40 per ct. of tartrate of lime.—*Wittstein's Viertelj. Schr.*, 1871, 447.

Purified Honey.—H. Michel has tried Heugel's process for purifying crude honey, published last year in the Russian Journal of Pharmacy, and obtained excellent results. The process is as follows: 2 lbs. each of honey and water are mixed with $\frac{1}{2}$ oz. carbonate of magnesia, frequently agitated for 2 or 3 hours, and then filtered through a double filter made of ordinary white filtering paper. The clear filtrate is heated for some time to boiling, the scum carefully removed, afterwards the liquid evaporated upon a steam-bath to a syrupy consistence. Honey of roses may be made from crude honey as follows, thus avoiding more than one evaporation: The infusion of 2 oz. rose leaves in 24 oz. hot water is expressed and strained after 12 hours; the cold liquid mixed with 24 oz. crude honey, and afterwards with 2 drachms of carbonate of magnesia; the mixture is frequently agitated for 2 or 3 hours, filtered and evaporated in a steam-bath to the proper consistence.—*Ibid.*, 446.

*The solubility of phosphate of sesquioxide of iron in citrate of ammonia was noticed in 1859 by Mr. A. F. Haselden and myself. See Amer. Journ. Pharm. 1859, p. 410. Editor, Am. Jour. Pharm.

New Source for Citric Acid.—O. Silvestri, Professor at the University of Catania, has found a large quantity of citric acid in *Cyphomandra betacea*, a solanaceous plant of Mexico, Peru, and other parts of South America, where it is called *tomate de la paz*. It is shrubby and attains the height of 4 meters. The fruit yielded between 1 and 1½ per ct. acid.—*Ibid.*, 449, from *Schweiz. Zeit. f. Pharm.*

Analysis of the Red Whortleberry, Vaccinium vitis-idaea, Lin.—Dr. Gräber.—The berries contain 10·185 soluble principles, 4·204 insoluble residue, cellulose, pectose, &c., and 85·611 water. The expressed juice was found to contain 1·975 free organic acid (citric and malic), 5·185 sugar, 0·476 tannin, 2·333 albuminous and pectinaceous bodies, suspended fat, &c., 0·216 inorganic bases (potassa, lime, magnesia, iron), and 89·815 water.

The insoluble residue yielded 0·102 per ct. ashes, consisting of sulphate and phosphate of lime, silicic acid, and oxide of iron.—*N. Jahrb. f. Pharm.*, 1871, Oct., 208—213.

Pure Chromic Acid is prepared by E. Zettnow by dissolving 300 grammes commercial bichromate of potassa in 500 of water, and adding 420 c. c. of oil of vitriol. In about 12 hours the bisulphate of potassa crystallizes out, the liquid is decanted, and the crystals washed with about 12 c. c. of water. The liquid is heated to 90° C., 150 c. c. concentrated sulphuric acid are added, and enough water to dissolve the flocks of chromic acid. The solution is now evaporated until a crystalline film appears, when, in the course of 12 hours, a crop of crystals is obtained; two or three additional crops may be obtained by evaporating the mother liquor. The crystals are collected and drained upon a cone of platinum foil, perforated with numerous small holes, and before the final drying washed with pure nitric acid, spec. grav. 1·46, which removes the last traces of sulphuric acid without dissolving more than mere traces of chromic acid.—*Poggendorff's Annalen*, 1871, No. 7.

A Compound of Sugar and Chloride of Sodium may, according to Mr. Maumené, be obtained by evaporating upon a water-bath a syrup containing 100 p. sugar to 13 p. of table salt. The crystalline mass is drained upon a funnel, and washed several times by returning the mother liquor upon it. The filtrate will now yield large prisms of the composition $C_{24}H_{22}O_{22}NaCl + 4HO$.—*Bull. de la Soc. Chim. Paris*, 1871. 1st quarter.

Copper in Spring and Pump Water.—Dr. Roux observed that spring water became impregnated with a minute quantity of copper, in consequence of the waste waters from a coppersmith's shop percolating through the soil, and finding their way to the spring. Water pumped through a copper pump contained somewhat more copper, but not sufficient to prove injurious to health.—*Journ. de Pharm. et de Chim.*, 1871, *Abût*.

Adulteration of Chocolate.—Archiv d. Pharm., 1871, July, contains a notice that, in the neighborhood of Bingen-on-the-Rhine, grape seeds are sold at the rate of about \$1 per cwt., and that in that neighborhood 500 cwt. had been ground for the purpose, it is said, of adulterating chocolate.

The officinal borax, according to M. Gille, is in prismatic crystals containing 47.10 parts water or 10 equivalents of crystallization, while that ordinarily met with is crystallized in octohedrons, and contains only five equivalents or 30.61 per cent. water. Borax being made for use in the arts, less care is bestowed upon it than it made for medicinal purposes; hence the commercial article usually contains the two varieties, so that a calculation based upon the equivalents would not give correctly the quantity of commercial borax necessary to replace a given weight of the prismatic. The latter form is obtained when solutions of borax are cooled to 56°C. and below; while the octohedric crystals are formed at a temperature of 79°C. The crystalline form, translucence and efflorescence are the principal physical characters for distinguishing the officinal from the commercial borax.—*Journ. de Pharm. et de Chim.*, *Sept.*, 1871.

Milk preserved for thirteen years by Appert's method, has been examined by Prof. Bouchardat. It was in three layers, the lowest of which consisted of a thin white deposit; the intermediate stratum was most abundant, and formed of an aqueous liquid, not perfectly transparent and of a yellowish color. The upper layer consisted mainly of fat which is partly liquid at 15°C.; only the two lower strata could be mixed by agitation, the butter separating readily. When the flask was opened, the liquid was found to have a faint odor of boiled milk; it was not coagulated by heat. The butter solidified during the night, its taste was little agreeable, somewhat rancid, though its odor was distinct from that of butyric acid.—*Répert. de Pharm.*, *Sept.*, 1871.

NIGELLA SEEDS, OR BLACK CUMMIN.

By DR. F. A. FLÜCKIGER, Professor in the University of Bern.

These seeds, which had a place in the Bengal Pharmacopœia (1844), are included in the Pharmacopœia of India (1868) among the "non-officinal" articles. But, as they are still of considerable importance in the East, and are even in use in some parts of Europe, I have thought that a few particulars regarding the experiments I have made upon them may not be uninteresting to the readers of the *Pharmaceutical Journal*.

Name.—In pharmacy they have been termed *Semen Nigellæ*, s. *Melanthii*, s. *Cumini nigri*. In English the plant bears the name of *Nigella*, *Black Cummin*, *Gith*, or *Bishopswort*; in German the seeds are called *Schwarzkümmel* or *Nardensame*; in French *Cumin noir*, *Graine de Nigelle romaine*, or *Poivrete*. Most of the Indian names signify, when translated, *Black Cummin*.

Botanical Origin.—*Nigella sativa*, L. (*N. indica*, Roxb.), belongs to the Order *Ranunculaceæ* and is an annual herb, 8 to 12 inches high, with leaves cut into numerous, narrow, pinnate segments. The flowers are solitary, terminal, without an involucre; the petals blue and white, with greenish glands. The capsule is formed of 3 to 6 carpels, opening by the ventral suture. The plant grows on the Mediterranean coasts, in Egypt and Trans-Caucasia, whence it has spread to India. Boissier* regards the var. β *brachyloba*, occurring in Cilicia and Syria, as the original type of the plant in a wild state.

Nigella sativa is now widely distributed as a corn-field weed throughout temperate Europe and America,† though not in Britain. In Germany it is cultivated to some extent near Erfurt.

History.—*Nigella* is thought by some to be the *kezach* of Isaiah (xxviii, 25), translated in the English Bible *fitches*.

Dioscorides described the plant clearly under the name of *Μελάνθιον*. Pliny called it *Gith*, under which appellation it is found among the plants which Charlemagne ordered to be cultivated on the imperial farms of his dominions. This name, however, was frequently applied in the middle ages to the Corn Cockle, *Agrostemma Githago*, L., which is, indeed, termed by Gerarde *Bastard Nigella*. In his time,

* *Flora Orientalis*, i, 68.

† Though occasionally cultivated in gardens, the plant is scarcely naturalized in the United States.—EDITOR AMER. JOUR. PHARM.

nigella was commonly sown in gardens, the seeds being used medicinally in wine as a spicy stimulant, and also as a perfume, for he says "it serveth well among other sweets to put into sweet waters, bagges, and odoriferous powders."

Nigella seeds had a place in the London Pharmacopœia as late as the edition of 1721. In the East, the seeds have been extensively used from the remotest times to the present day.

Description.—The seeds are about $\frac{1}{10}$ th of an inch long, of an irregular, compressed pyramidal form, 3 or 4-sided, with an oblique rounded base, whence sharp ridges proceed towards the blunt summit of the seed. The surface is black, rough, granular, and devoid of polish. The seeds have an aromatic taste, and, when crushed, considerable fragrance.*

Microscopical Structure.—The albumen consists of large polyhedral cells, and is covered by a thin brown tegmen. The testa presents two or three rows of more or less thick-walled cells, the inner being elongated in a direction parallel to the surface of the seed, the outer vaulted, and a certain number of them, chiefly those forming the ridges, prominently conical. The whole testa is blackish or dark bluish. The embryo is situated near the apex of the seed.

The tissue of the albumen abounds in fat oil and in granular albuminous matters; it is not altered by a salt of iron.

Chemical Composition.—Reinsch in 1841 obtained from this seed 35.8 per cent. of fat oil, 0.8 per cent of volatile oil, and only 0.6 per cent. of ash. He gave the name of *Nigellin* to a bitter extract resembling turpentine, yet soluble in water as well as in alcohol, though not in ether.

By submitting 25 lbs. of fresh seed to distillation, I obtained a nearly colorless essential oil in even smaller quantity than *Reinsch*. It has a slight odor, somewhat resembling that of parsley oil, with a magnificent bluish fluorescence, as already remarked by Reinsch.

In a column 50 mm. long, this oil deviates the ray of polarized light 9.8° to the left. Its specific gravity is 0.8909. The chief part of it, when distilled with chloride of calcium in a current of dry carbonic acid, comes over at 493° (256° C.) In an elementary

* Those of the nearly allied *N. Damascena*, L., are rather more ovoid, less sharply ridged, less aromatic, and not pungent.

analysis* it yielded: carbon 83·3, and hydrogen 11·8 per cent, corresponding to the formula $2C_{10}H_{16} + H_2O$.

The residual portion was almost entirely devoid of deviating power; it yielded: carbon 87·89, and hydrogen 11·72 per cent., after having been rectified by means of sodium. This part of the oil consequently belongs to the formula $C_{10}H_{16}$.

I extracted the fat oil, by means of boiling ether, from seed grown in Germany, previously finely powdered. The oil thus obtained, which necessarily included some essential oil, imparting to the other its fluorescence, amounted to 25·6 per cent. It is a fluid fat, which does not congeal at $+5^{\circ}$ (-15° C.); it was found to consist chiefly of olein, besides which it yielded a considerable amount of a solid fatty acid, the crystals of which, after reiterated purification, melted at 131° (55° C.) The melting point did not rise by recrystallization, the acid being probably a mixture of palmitinic and myristic acids.

Nigella seeds, powdered and dried over sulphuric acid, yielded 3·3195† per cent. of nitrogen, answering to about $21\frac{1}{2}$ per cent. of albuminous matter.

Uses.—It is stated in the Pharmacopœia of India, that nigella seeds are carminative, and they were formerly so regarded in Europe. In the East generally they are used as a condiment to food, and in Greece, Turkey and Egypt they are frequently strewed over the surface of bread and cakes in the same manner as anise or sesame. The fixed oil of the seeds is also expressed for use.

I have no recent statistics indicating the extent to which the seed is grown, but may state, on the authority of an official French document, that, during the year 1854–55, 83 quarters, worth 2592 rupees, were exported from Madras to Ceylon.—*Pharm. Journ., Lond., Aug. 26, 1871.*

OIL OF ANDROMEDA LESCHENAULTII.‡

. . . Early in 1867 Mr. M'Ivor requested me to examine an essential oil which he had obtained from a very common hill plant,

* Performed in my laboratory by Dr. Kraushaar.

† On an average of three experiments made in my laboratory.

‡ Extract from letter from J. Broughton, Esq., Government Quinologist, to the Secretary to Government Revenue Department, Fort St. George, dated Ootacamund, 9th January, 1871.

the *Andromeda Leschenaultii*. I did so, and was enabled to identify the oil as methyl-salicylic acid, and almost identical with the Canadian oil of wintergreen.

Oil of wintergreen is an object of some slight commerce, being used in perfumery, and occasionally in medicine as an antispasmodic. The oil from this Indian source contains less of the peculiar hydrocarbon oil, which forms a natural and considerable admixture with the Canadian oil, and therefore is superior in quality to the latter. The commercial demand for the oil is not, however, considerable enough to make its occurrence in India of much direct importance.

It occurred to me in 1869 that methyl-salicylic acid would, however, under suitable treatment, furnish carbolic acid according to a decomposition described by Gerhardt. After a few experiments I was successful in preparing considerable quantities of pure carbolic acid.

The method of manufacture is as follows:

The oil is heated with a dilute solution of a caustic alkali, by which means it is saponified and dissolved, methylic alcohol of great purity being liberated. The solution of the oil is then decomposed by any mineral acid, when beautiful crystals of salicylic acid are formed. These are gathered, squeezed, and dried. They are then mixed with common quick-lime, or sand, and distilled in an iron retort; carbolic acid of great purity, and crystallizing with the greatest readiness, passes into the receiver.

This acid is equal to the purest kind obtained from coal tar, and employed in medicine. I exhibited a specimen of it at the Neilgherry Exhibition in 1869. It, of course, possesses all the qualities which have rendered this substance almost indispensable in modern medical and surgical practice.

I had hoped, from the inexhaustible abundance with which the plant grows on the Neilgherries, that the carbolic acid from this source could be prepared at less cost than that imported. I have not yet had an opportunity of working on a large scale with an itinerant still, as would be necessary for its cheapest production; but from some calculations I have lately made, I am led to think it can scarcely be prepared for less than the price of that procured from coal-tar. The purest kinds from the latter source cost four shillings a pound; I estimate the cost of that from this indigenous source at from rupees 2·8 to rupees 3·8 (5 to 7 shillings) per pound *in this country*.

The carbolic acid from the same source has certain advantages over the coal-tar acid, consequent upon its extreme purity. It is less deliquescent, and cannot possibly be open to the suspicion of contamination with certain other products of coal-tar which possess injurious qualities. This occasional suspicion, indeed, has led to the introduction of the costly thymol in France, as a substitute, in delicate cases, for carbolic acid.

In conclusion, I am led to the belief that it would not be advisable to prepare carbolic acid from this singular source, when the comparative cost shows that the gain must be very small or non-existent. But it appears to me well worthy of record that, should circumstances render the supply of the English product difficult or uncertain, as in the case of war, or the English price increase, a practically inexhaustible source exists in this country from which this indispensable substance, in its purest state, can be obtained at a slight enhancement of the present price.—*Pharm. Journ., Lond., Oct. 7, 1871.*

NOTE ON PURE CARBOLIC ACID.

BY PROFESSOR CHURCH, M.A.

Since 1856 I have occupied myself a good deal with experiments as to the practical hygienic applications of carbolic acid, particularly as to its use in dentistry and in throat affections, and also as regards its employment as a disinfectant. The rank of carbolic acid as a most valuable contribution from chemistry to medicine is so well assured that it is unnecessary to insist upon this point here. Yet there is an objection urged against this substance, which has some apparent force, simply because the best preparations of commerce are so seldom free from a gas-like or naphthalic odor, which, though entirely foreign to carbolic acid itself, has condemned its use in some quarters. About 11 years ago, in preparing pure carbolic acid for the use of a surgeon-dentist to whom I introduced it, I adopted a plan which I shortly afterwards described before the Odontological Society, and to which I have been lately asked to give greater publicity. My plan, which is very simple, is as follows:—

One pound of the best carbolic acid of commerce (I use Calvert's white crystallized acid) is poured into 20 pounds of cold distilled water, taking care not to permit the *whole* of the acid to enter into

solution. With a good sample, if after shaking repeatedly at intervals, between two and three ounces of the acid remain at the bottom of the vessel used, this will be a sufficient residue to hold and contain all the impurities. With bad samples, less water must be used or more acid. The aqueous solution should be syphoned off, and filtered if necessary through Swedish paper till perfectly clear; it is then placed in a tall cylinder, and pure powdered common salt added with constant agitation till it no longer dissolves. On standing, the greater part of the carbolic acid will be found floating as a yellow oily layer on the top of the saline liquor, and merely requires to be removed by a syphon or pipette to be ready for use. As it contains 5 per cent. or more of water, it does not generally crystallize, but it may be made to do so by removing it to a retort, and distilling it from a little lime. The portion collected up to 185°C. or thereabouts has at ordinary temperatures scarcely any odor, save a faint one resembling that of geranium leaves; and I have taken advantage of this curious resemblance still further to mask the slight smell proper to absolutely pure carbolic acid by the addition to it of four drops per fluid ounce of the French oil of geranium. This addition has the further advantage of liquefying the pure crystallized product.

The carbolic purified as above has been so highly appreciated by those professional and private persons to whom I have distributed samples, and who were dissatisfied with the purest commercial samples, that I have thought it best to publish my simple plan, for which, however, I claim no originality. It involves, I know, considerable loss of material, but the saline liquor remaining may be distilled and thus made to yield up a second portion of pure carbolic acid, and it will be found a very pleasant and effective domestic disinfectant and deodoriser.

When dissolved in 230 parts of water and used as a gargle, or in 25 parts for painting the throat, or in 50 parts for a carbolic spray, the pure acid is rarely, if ever, objected to even by the most fastidious person. Of course it may be readily mingled with olive or other oil (1 : 25), or with glycerine, for dressing cuts and sores, and when introduced into the little air-purifier invented by me and noticed in your columns some months back, diffuses wholesome and inoffensive vapor in any place where there are disagreeable effluvia of vegetable or animal origin.—*Chemical News*, October 13, 1871.

CHINESE PEPPERMINT OIL.

BY PROF. FLÜCKIGER.

According to a notice contained in the *American Journal of Pharmacy*, May, 1871, p. 223,* the Chinese, when suffering with facial neuralgia, use oil of peppermint, which they lightly apply with a camel-hair pencil. This application has now found its way to the opposite shore of the Pacific, where the immigration of Chinese people is very considerable. The American journal, indeed, states that Chinese pharmacutists in San Francisco, as well as in New York, sell the said remedy for neuralgia, and that it has already gained some repute. The oil for this purpose is put up in small phials containing about half a drachm.

I had the opportunity, some weeks ago, of a conversation with a Swiss merchant, coming from San Francisco, who not only corroborated the above information, but showed me a phial containing the "Chinese medicine," which he had bought there himself in a Chinese pharmaceutical shop. The owner of the phial had frequently used it, and spoke in high terms of the good effects of the oil. The phial contained, I think, even less than half a drachm (price one dollar!), and was labelled, *Fook Chang Yong*, wholesale and retail druggist and chemist, 744 Sacramento street, corner Dupont, San Francisco.

I was suspicious enough to suppose the oil to be common peppermint oil, of American or English origin, procured, perhaps, by the Chinese in San Francisco, although the said merchant firmly believed, for good reasons, as he thought, it was directly imported from China.

Having pointed out the magnificent fluorescence which nitric acid imparts to peppermint oil,† I found that the above Chinese oil partakes not at all of this reaction; it is not colored by nitric acid (1·20 sp. gr.), even when gently warmed with it.

A few drops of the oil exposed for some hours only on a glass slide yielded abundantly crystals of a camphor, reminding me in every respect of the solid *Japanese peppermint oil*, which during the past few years has been met with in European trade.

In both the above respects the Chinese peppermint oil is consequently different, at least, to most of the specimens of European and

* See Pharm. Journ., No. 26, 1870, p. 426.

† See Pharm. Journ., Feb., 1871, p. 682, and Aug., 1871, p. 714; also Ameri-Journ. of Pharm., 1871, p. 164.

American oil at my command, although it has the same agreeable flavor. Does it, that is to say its solid part, which appears to be prevailing, agree with the Japanese drug? I have ascertained that the latter is not altered by the treatment with nitric acid; it may, therefore, very likely be identical with the crystallizable part of Chinese oil. I have also been informed by the said Swiss gentleman that the "Chinese medicine" in cold weather solidifies even in California.

I should be happy if my fragmentary observations could induce some resident in China or Japan to devote some investigation to the mother-plant of the Eastern soils under notice, and to the production of the latter. Is the solid Japanese oil obtained by means of cooling from a liquid similar to the Chinese oil? Chinese oil is said to be distilled at Canton.*

As to the former, I beg to remind that it has been shown by Oppenheim and by Gorup-Besanez† to agree with the formula $C_{10}H_{18} + H_2O$, and to possess the nature of an alcohol. This so-called *Menthol* appears to be identical with peppermint-camphor, which sometimes in cold separates from peppermint oil; their identity, however, is not quite satisfactorily proved. Camphor obtained from peppermint oil has been analyzed by Dumas, by Blanchet and Sell, and also by Walter.‡ Its percentage composition is the same as that of menthol. —*Pharm. Journ., Lond., Oct. 21, 1871.*

THE PURIFICATION OF FATS AND SUETS.

The task that devolved upon the authorities of Paris during the late siege of that city by the Germans, of obtaining food for the many thousands who were cut off by the iron circle of their enemies from their usual sources of supply, was a difficult, and, as the event proved, an impossible one. Towards its accomplishment, however, great efforts were put forth by French *savans*, and for a time the whole current of scientific investigation was turned towards securing increased effectiveness in warlike weapons, the enforcement of the sanitary regulations best suited to the abnormal state of affairs, and the discovery and utilization of previously unknown or unused alimentary substances.

* Hanbury, *Pharm. Journ.*, Sept., 1871, p. 244.

† *Comptes Rendus*, liii, 379, 483; *Journ. Chem. Soc.*, xv, 24; *Jahresbericht der Chemie*, von Kopp und Will., 1861, 683.

‡ Gmelin, *Org. Chemistry*, viii, 450.

Among the many memoirs presented to the French Academy with the last-mentioned object, were some that treated of a subject not without interest to pharmacists,—the purification of fats and sucts,—of which the following is a *résumé*.

M. A. Boillot communicated a method which he stated had yielded excellent results, and for which he claimed the merits of simplicity and moderate cost.* Two litres of lime-water is added to one kilolitre of the fat or suct, mixed well together, and kept over the fire two or three hours. It is then left to cool, and, when it has become pasty and acquired a sufficient consistence, it is decanted, placed in flannel or linen, and submitted to an increasing pressure, when water and oleic acid, containing besides some solid fatty acids, from which it can readily be freed afterwards, passes through. The oily mass, after two or three days, acquires a whiteness which leaves nothing to be desired; and when freed from the little lime that it contains by treating it with water slightly acidulated with sulphuric acid, may be used for purposes of illumination. Fat thus prepared loses its bad odor, and acquires a remarkable hardness and whiteness;† and if run into water to which a small quantity of sulphuric or acetic acid, or vinegar, has been added, it will be thoroughly purified, and may be employed for all purposes to which the best fats are applied.

M. Dubrunfaut states‡ that the most tainted fat may be deprived of its characteristic odor by submitting it to the operation of frying; and that, after being thus treated in a manner specified, it may be used for all culinary preparations, and even for pastry. For this fact he furnishes the following scientific explanation.

M. Dubrunfaut has practically ascertained, by laboratory and manufacturing experiments, that fish oil is radically deprived of its odorous principle by simply heating it to a high temperature (330 C.) He has also found that the fatty acids are volatilized in a current of steam at a temperature above 100° C., whilst the neutral fats remain perfectly fixed. Finally, he has found that the neutral fats comport themselves in a similar manner to the fatty acids under the influence of a current of steam, if they have previously been heated to a temperature of from 300° to 330° C.

* Comptes Rendus, lxxii, 36.

† The use of lime for the purpose of blanching lard has already been reported from America. There, however, it appears to be left as an impurity in the lard. See Pharm. Journ., 1st ser., vol. i, p. 1043.

‡ Comptes Rendus, lxxii, 37.

The manner in which the purification is effected is by heating the fat in a frying-pan or other suitable utensil to a temperature of about 140° to 150° C., then cautiously sprinkling upon it small quantities of water. The vapor so caused traverses the fat, decomposes the neutral fatty substances,—which, as shown by M. Chevreul in the case of hircine, yield fatty acids,—the whole of the fatty acids are volatilized, and the purification is accomplished. These conditions, he says, unite all the elements which are favorable to the elimination of the volatile fatty acids, which are generally the material cause of the odors of fat substances. The product thus obtained is as perfectly purified as the finest lard.

M. Dubrunfaut had so much faith in the efficacy of this method of purification, that he called attention to the large quantity of candle tallow still in the city, and stated that by a modification of the process to suit the known constituents of the tallow, the whole of it might be so purified as to fit it for use in cooking various kinds of coarse flours, such as buckwheat flour, and thus secured for the purposes of alimentation. The same method might also, he stated, be applied to the large stock of colza oil.

In a second note presented to the Academy,* M. Dubrunfaut again called attention to the facility with which the large stocks of tallow and colza oil might be utilized for food, while the mineral oils would suffice for the purposes of lighting. On this occasion he pointed out the similarity of the origin of the kitchen fats and the tallow of commerce, and said that the absence from the kitchen fats of the repulsive odor of the tallow was due to the method of preparation. In the operation of roasting meat especially the conditions necessary for the purification of the fat—the high temperature and the superheated vapor—were realized in perfection. And although they were present in a less degree in the operation of boiling, still there was a real purification. This opinion is supported by the fact that tainted fat, undergoing ebullition in a melting-pot in the presence of salt water, is purified in proportion as the boiling is prolonged.

As the result of various experiments in which colza oil was treated according to M. Dubrunfaut's method, he reported that the oil lost its characteristic taste and odor, preserving only a slight savor that was not repulsive, and would not prevent its use in culinary operations.

MM. Wurtz and Willm reported† that they had found that when

* *Comptes Rendus*, lxxii, 57.

† *Ibid.*, lxii, 57.

colza oil was submitted to a current of steam at a temperature of from 116° to 120° C., an odorous and acrid principle was carried off without sensibly saponifying the oil,—an inconvenience which followed the employment of steam too highly heated. Washing with a feeble warm solution of carbonate of soda takes away all traces of the fatty acids that may have been formed, or have pre-existed, in oil of bad quality; but the separation of the soap so formed presents some difficulties.*

M. Fua suggested† a modification of M. Dubrunfaut's method, which consisted in melting the fats at so high a temperature that the residue of the cellular and vascular tissues were thoroughly exhausted. He also expressed an opinion that these methods for the purification of fats were preferable to the introduction of either acids, alkalies, or substances, as these foreign bodies had always to be removed afterwards.—*Pharm. Journ., Lond., Oct. 21, 1871.*

SOLUTION OF SUBACETATE OF LEAD.

By R. ROTHER.

The officinal solution of diplumbic acetate $(C_2H_3O_2)_2Pb''Pb''O$ is one of the most inconstant preparations of the pharmacopœia. In this process the quantities of material employed are so adjusted, that were they officinally directed in the proper condition, the resulting product would be diplumbic acetate. But the plumbic oxide of the pharmacopœia, owing to the peculiarity of its constitution and method of preparation, is totally unfit for this purpose. The writer, in all his experience with this preparation, found but a solitary sample of litharge, which dissolved without residue, and as a general rule, the greater part of it invariably remained insoluble, whether digested in the cold, or after prolonged boiling. In such cases, the preparation would therefore be nothing more than a solution of the normal acetate

* Some idea of the importance of this subject to the Parisians under then existing circumstances may be inferred from the fact that the stock of colza oil in the reservoirs at St. Ouen and La Valette was estimated at from 12,000,000 to 13,000,000 kilograms. This enormous quantity had been accumulated by speculators who, anticipating a great demand for illuminating purposes, had obtained the oil from all the markets of Europe. It was the ordinary colza oil of commerce, prepared by warmth from the seeds of *Brassica Napus*, and had not undergone sulphuric purification which, while rendering it combustible, would have unfitted it for alimentation.

† Comptes Rendus, lxxii, 59.

($C_2H_3O_2)_2Pb''3OH_2$), containing an indefinite proportion of sesquibasic, and none whatever of the dibasic salt. The measure of the ultimate product is also not directed; but which, if it contained only diplumbic acetate, as is obviously the officinal intention, should be made to measure $4\frac{1}{2}$ pints, thus presenting 1 troy ounce of diplumbic acetate in 3 fluid ounces of the solution. Owing to the unsatisfactory results of the officinal method, the writer discarded the use of litharge altogether, and resorted to the plumbic hydrate made by precipitation. As will be evident, this modification of the procedure eliminated the objectionable features by yielding a definite product, and simplifying the operation.

Freshly precipitated plumbic hydrate is readily and completely soluble in a warm solution of the normal plumbic acetate, and the compact, curdy character of the precipitate admits of its most easy and perfect separation by means of a strainer from the precipitating liquid.

The officinal formula employs 16 troy ounces of normal plumbic acetate, and $9\frac{1}{2}$ troy ounces of semivitrified plumbic oxide, and attempts to form a solution by boiling the mixture with 4 pints of water for half an hour. The second lead molecule of the compound to be generated is represented by 16 troy ounces more of normal plumbic acetate. If, now, 16 troy ounces of this salt be treated with $4\frac{3}{4}$ ounces of pure potassium hydrate (free from carbonate) which is a slight excess, the requisite quantity of plumbic hydrate necessary to furnish the extra molecule is precipitated.

This is now separated with a muslin strainer, and the solid residuary cake heated nearly to boiling, with 16 troy ounces of the normal acetate, dissolved in about $3\frac{1}{2}$ pints of distilled water. If the potassium hydrate was free from carbonate, the precipitate will dissolve completely, otherwise a small residue of plumbic carbonate will remain after filtration. This may be dissolved in a few drops of acetic acid, and incorporated with the solution. The liquid strained from the precipitated plumbic hydrate is a solution of potassium acetate, which can be utilized by adding potassium carbonate to remove a trace of lead held in solution by the slight excess of alkali first used, the solution neutralized with acetic acid after filtration, and evaporated to dryness.

The new formula for solution of diplumbic acetate is then as follows :

Take of Normal plumbic acetate (cryst.), 32 troy ounces.

Potassium hydrate (pure) $4\frac{3}{4}$ troy ounces.

Distilled water sufficient.

Dissolve 16 troy ounces of the lead salt in 3 pints of distilled water, with heat. Dissolve the potassium hydrate in 8 fluid ounces of distilled water, and mix the solutions; continue the heat a short time longer, and when nearly cooled, pour the magma on to a muslin strainer, and wring the liquid out with thorough pressure. Dissolve the remaining 16 troy ounces of the lead salt in $3\frac{1}{2}$ pints of distilled water with heat; to the solution add the magma of plumbic hydrate, and continue the heat until this has dissolved. Now add distilled water to the measure of $4\frac{1}{2}$ pints. Mix and filter.—*The Pharmacist*, Oct, 1871.

ON THE EMPLOYMENT OF BROMINE IN ANALYTICAL CHEMISTRY.

BY P. WAAGE.

Translated by P. Schweizer, Ph. D., from *Fresenius' Zeitschrift*, for 1871, second quarterly number.

The oxidizing agents, which are principally employed to-day in chemical analysis, are nitric acid, chlorate of potassa and hydrochloric acid, and chlorine. Each of these, however, though excellent in some ways, has drawbacks to its general employment.

Among those, prominent in the use of nitric acid, is the slowness with which it acts in dilute solutions; the length of time required, even when concentrated, to oxidize sulphur; that it never can be employed in platinum vessels, on account of small quantities of chlorine, which it generally contains, and that it must never come in contact with organic matter, like filter paper, if a subsequent precipitation of a metallic oxide is desired.

Chlorate of potassa acts only in the presence of somewhat concentrated hydrochloric acid, which, in larger quantities may, under certain conditions, affect the accuracy of the work. Considerable difficulty is at the same time experienced in driving out the last traces of chlorine by boiling, especially in working with dilute solutions. Undecomposed chlorate of potassa is generally the cause of this difficulty, and addition of more hydrochloric acid will be necessary, which requires subsequent dilution before filtration.

The limit for the use of chlorine water is a narrow one, as it does

not contain more than $\frac{1}{2}$ per cent. of chlorine. The employment of gas is troublesome, as an apparatus must be arranged for every oxidation.

Bromine therefore seems to me to be the oxydizing material which, being free from the drawbacks that prevent the general employment of the three above mentioned substances, deserves a place in qualitative as well as quantitative analysis.

I employ the bromine principally in three forms, as free bromine, as bromine-water, and as bromine in concentrated hydrochloric acid. Bromine-water, prepared by shaking an excess of bromine with water, contains between two and three per cent. of bromine. Concentrated hydrochloric acid, treated in the same way, furnishes a solution, containing about thirteen per cent. of bromine. In choosing for each case the oxidizing material as to quantity and concentration, an excess may be easily avoided, and the prominent odor and color of bromine furnish the best means to recognize an excess, which can be driven off easily by boiling, on account of the low boiling point of bromine. Bromine water attacks platinum neither in alkaline nor acid solutions, if the latter are free from nitric acid, and it is, in this shape or dissolved in hydrochloric acid, without action on paper, so that a metallic sulphide may be dissolved and oxidized in presence of the filter paper by means of bromine, when the oxide can be completely precipitated by potassa or ammonia.

I have employed bromine most advantageously for the oxidation of sulphur, sulphydric acid and metallic sulphides. For two and a half years it has been my solvent for sulphur, magnetic pyrites, copper pyrites, mispickel, nickel mattes, and precipitated sulphides, both for the determination of sulphuric acid and the metals.

Sulphur, shaken with bromine and water, is easily converted into bromohydric and sulphuric acids, if for every atom of sulphur three of bromine are present, or fifteen by weight of bromine to one of sulphur. If sulphur has to be determined in this way it is best to add all the bromine at once, so that no sulphide of bromine can be formed.

In the treatment of pyrites, no necessity will exist for pulverizing them very finely, as they are oxidized by bromine quite easily even in larger pieces, but it is best to add water first and then bromine with constant stirring, that the action may not become too violent.

Bromine-water is the most convenient material for the destruction of hydrosulphuric acid. A few drops of it added to a filtrate from a

metallic sulphide will immediately produce a separation of sulphur, which will as quickly be dissolved by a further addition of a few drops of bromine-water.

In dissolving precipitated metallic sulphides I proceed in the following manner: I perforate the filter-paper and wash as much of the precipitate as possible into a beaker. I then pour some of the bromine gas into the funnel and cover the latter with a watch glass, when after a few minutes the rest of the sulphide may be washed into the same beaker, and a further addition of bromine-water readily oxidizes the rest of the sulphide. I thus get rid altogether of the trouble of burning the filter-paper.

Bromine liberates nitrogen in contact with ammonia and can therefore not be employed as an oxidizing agent, in an ammoniacal solution. Ammonia may therefore with advantage be used to destroy an excess of bromine. Ammoniacal salts sometimes prevent the development of the oxidizing property of bromine, so that the peroxides of cobalt, nickel and manganese can not be formed under these conditions; iron, tin and mercury salts will, however, be easily converted into the higher oxides in acid solutions, though they contain ammoniacal salts.

Bromine, as it usually occurs in commerce, is not pure, but contains a substance, which seems to be caoutchouc, from which it must be freed by distillation in an apparatus, which does not have any caoutchouc connections.—*American Chemist*, October, 1871.

ON THE ADULTERATION OF FOOD, PRINCIPALLY WITH A
VIEW TO ITS DETECTION BY THE MICROSCOPE.*

BY WALTER MORRIS.

Adulteration was defined as being the fraudulent addition to any substance of another, for the sake of increased sale or profit. There are several modes of accomplishing this end; the first, and the most common, is by the addition of some article to increase the bulk or weight, as when starch is added to mustard, and cheaper flours to wheaten flour; the second by improving the appearance and apparent quality, so as to sell an inferior article at the price of a better, as in the case of the artificial coloring of pickles made of stale vegetables

* Abstract of a Paper read before the Manchester Literary and Philosophical Society.

to resemble fresh. One of the commonest apologies for these practices is that the public prefer the adulterated article to the pure ; that, for instance, pure mustard "will not sell." This allegation is, however, hardly a fair one, as the pure article is never offered ; and, doubtless, if the pure article were used as freely as the ordinary mixture, it would be found unexpectedly pungent. But the fallacy of such apologies has been exposed by the example of pickles, which under this plea used to be invariably colored with an artificial and frequently poisonous pigment. The public eye was thus educated to expect them of a bright green ; yet, since some manufacturers have exposed the fraud and sent out pure pickles, the public have completely turned round, and avoid any which show an unnatural color.

The adulteration of bread and flour with alum, to make them look whiter and of a superior quality, has to some extent diminished ; but that substance is often replaced by the still worse sulphate of copper, or blue vitriol, which was recently detected in sixteen out of twenty loaves tested. In this case the public has been led to suppose that the quality of bread is shown by its whiteness, whereas by taking out the bran a most valuable part of the grain, viz., its azotised or flesh-forming portion, is lost. Less dangerous admixtures are those of cheaper flours, such as barley, rice and "cones" (the latter made from a species of wheat called *revet*), and even beans.

The adulteration of coffee with chicory, though so well understood, exists, especially in poorer neighborhoods, to an extent hardly credible. Out of forty-seven samples, eighteen were found pure, the lowest price of which was 1s. 4d. per lb. ; of the rest, most were half, and some were wholly, composed of chicory, which, being worth about 6d. per lb., was thus sold at 1s. and 1s. 4d. The difference can be readily detected by the microscope, the cells of chicory being much larger, and the cell walls much thinner than those of coffee.

Even chicory itself is much adulterated ; out of fifty-seven samples only about one-half were pure, the adulterants being roasted wheat, acorns, beans, carrots and sawdust.

Tea is less subject to adulteration than many articles of food ; such abominations as the celebrated Maloo mixture, consisting of old used leaves re-dried, willow leaves and twigs, and even iron filings, have been quickly detected and refused by the trade. The "facing," however, of green tea with poisonous coloring matter is both absurd and harmful : and it will probably be continued so long as the public

are content to accept such a palpable imposture as "genuine green."

It is a matter of opinion whether cocoa as ordinarily sold is to be considered an adulterated or a manufactured article. It is seldom sold pure and alone; being usually mixed with starch and sugar—the term "pure cocoa" is, therefore, in most cases, intended to mislead. Some kinds have lard or suet admixed, and to others red ochre is added to bring up the color, rendered pale by an excessive quantity of starch. The relative quantities of these component parts in any sample of cocoa may be readily ascertained by the microscope; that of starch may be roughly seen by shaking up some of the cocoa with water in a test-tube or tall bottle, breaking up the lumps, and then allowing all to settle; when the starch will sink to the bottom and form a white layer beneath the cocoa. On warming the water, the fat will of course float on the top, and the sugar will be dissolved. The sugar crystals and fat are also shown by re-drying the solution on a glass slide.

Sugar is mixed with inferior kinds of the same article, but not (as popularly believed) with sand; the chief impurities in raw sugar are cane fibre, accidental dirt, and the sugar mite or acarus. The latter exists in most raw sugars (out of 72 samples 69 contained mites); but more abundantly in the moderately brown kinds than in the darker. The insect is barely visible to the naked eye. To obtain specimens, the sample should be dissolved in tepid water and well stirred, then allowed to stand a few minutes, and the acari will be found as minute particles floating on the top. The process of refining entirely removes these and the other impurities named.

Mustard is invariably adulterated with flour, which forms one-half or three-fourths of the article as usually sold. It may be readily detected by the microscope, mustard itself containing no starch whatever. Turmeric is often added to bring up the color after this wholesale admixture, and cayenne to give it strength.

Pepper may now be obtained pure of respectable dealers; but as regards the cheaper kinds, and in poor neighborhoods, it is largely adulterated with meal or starch, gypsum, and dirt of any kind, to give bulk and weight. The starchy substance may be detected by the microscope, the earthy ones will be left as ash after burning, and their character may be ascertained by the polariscope. The particles of pepper itself are easily recognised by the characteristic stellate

cells in the outer skin, and the hard angular ones of the inner part of the seed.

Many examples of the above and other kinds of adulteration, mounted for the microscope, were exhibited at the same time, for comparison with pure specimens.—*Lond. Chem. News*, October 27, 1871.

SOLVENTS FOR INDIGO.

DR. E. JACOBSEN.

Translated by C. Dengenhardt.

Some new solvents for indigo have lately been given by de Aguiar and Baeyer, and by Prof. Wartha. (See *American Chemist*, Vol. I, p. 472). To these I will also add a few which I have discovered. That aniline will dissolve indigo has been known several years, from my own experiments. But an equally good solvent for indigo is nitrobenzol, which when heated with indigo is colored a deep violet blue, and on cooling deposits flaky crystals and then appears dark red, probably from red indigo.

In greater or less quantities the following substances dissolve indigo at their boiling points:

Castor oil, acetone, hydrate of chloral, camphor, oil of turpentine, balsam of copaiba, cedar oil (oil of Juniper virgin), amylic alcohol, oil of lavender, white beeswax, Japanese vegetable wax and Carnauba wax, (from this last small flaky crystals precipitate).

The higher the boiling point of the solvent, the redder is the appearance of the solution, so that bodies like acetone, amylic alcohol and hydrate of chloral give a clear blue. Castor oil, cedar oil, etc., a violet blue, and the different kinds of wax a purple red solution. If kept for a short time at the boiling point with white wax, the color changes from scarlet to orange, and at last to a brown. The indigo is reduced by the formation of acrolein, and the solution retains its brown color even on the addition of gasoline.

If powdered indigo is added to melting picric acid, the former will be decomposed with deflagration.

Editorial Department.

PROFESSOR BENTLEY.—We take great pleasure in contradicting the obituary notice contained upon page 480 of the October number of this journal. We were agreeably surprised, on receiving the London "Pharmaceutical Journal" for October 7th, which contains an account of the meeting of the Pharmaceutical Society held October 4th, at which Prof. Bentley made a report on the examinations in botany and materia medica. The same journal, for October 28th, states that the error probably arose in the announcement of the death of Mr. R. Bentley, the publisher. We hope that Professor Bentley may be spared yet many years, and, in the enjoyment of good health, may live to see pharmacy occupying a still higher position, to which object he has devoted a life of usefulness.

THE MICHIGAN UNIVERSITY SCHOOL OF PHARMACY.—In reply to our editorial remarks on pages 522 and 523 of our last number, we have received from Prof. A. B. Prescott a note, from which we extract the following: "It is true that the non-requirement of apprenticeship before graduation from this school was the only ground of objection against its admission which came to my knowledge during the meeting at St. Louis. I was present with the Committee, to make some statements which they desired, though not present during the deliberations, and I asked that the ground of objection should be distinctly stated by the Committee and by the Association." We believe that the Association has done so; and the admission of Prof. Prescott, in the first sentence quoted, defines the question at issue at the last meeting in St. Louis. Every member present, we think, has voted with the same understanding, so that we see no necessity of dwelling farther upon this subject.

PREPARATION OF SUPPOSITORIES.—In a note addressed to the Editor, Mr. Chas. Shivers, Jr., speaks approvingly of the manipulation in the preparation of suppositories, as described by Mr. R. F. Fairthorne on page 488 of our last number, which is also followed by Mr. Shivers. The latter adds a suggestion, to slightly grease the moulds with olive oil, which gives the suppositories a splendid smooth surface, and prevents their adhering to the mould. They readily slip out on tapping the moulds on the counter.

THE GREATER INCLUDES THE LESS.—With this axiomatic sentence the "Medical and Surgical Reporter" of Oct. 21st closes an editorial note headed Apothecaries and Physicians. It appears that a daily paper of this city complained of apothecaries practising as physicians without having been educated as such, and of physicians dealing in drugs and preparing medicines without having attended the regular course of instruction in a school of pharmacy. The "M. and S. Reporter" argues that an accomplished physician ought to be

skilled in pharmacy, but an apothecary does not study medicine; to all of which we reply that a physician does not study pharmacy. Those who have devoted themselves to the latter profession will fail to see how the study of medicine can make one skilled in pharmacy.

THE FATHER OF THE NEW YORK DRUGGISTS' EXAMINING LAW.—We clip the following from the *N. Y. Tribune* of Nov. 10. The item deserves to be preserved in our journal, as illustrating the history of pharmaceutical legislation, Mr. Irving having introduced and secured the passage of the examining law with which New York city is now burdened:

The spectacle of a New York Assemblyman in irons is not especially edifying; but Mr. James Irving, who represented Tammany in the last Legislature, and was defeated for re-election last Tuesday, is that unhappy object of the law's severity. Charged with being one of a party which attempted to rescue a "repeater" from an Assistant U. S. Marshal, he was arrested and discharged by one Commissioner before a warrant issued by another Commissioner could be served. He could not escape this way, however, and was brought before Commissioner Davenport and put in irons, as he chafed like a tiger. In the meantime the officer who was wounded in the attempt at rescue lies at the point of death. We hope that no law's delay, nor judicial easy-going will permit this ruffianly attack to pass without due exemplary punishment.

Pharmaceutical Colleges and Associations.

PHILADELPHIA COLLEGE OF PHARMACY.—Three students of the Chicago College of Pharmacy have availed themselves of the invitation extended to them by a resolution to which we alluded in our last number, and which reads as follows:

Whereas, the presumption is that our friends of the Chicago College of Pharmacy will be prevented from carrying on their course of instruction, during the present session, by reason of the disastrous fire which had destroyed so large a portion of their city; therefore

Resolved, That all students matriculated for the session, 1871--72, in the said College, are hereby invited to pursue their studies in connection with the current course of instruction in this College, and that to facilitate this, we hereby tender to them *all* the necessary tickets, free of charge.

Resolved, That the President and Secretary of this College are instructed to communicate a copy of the foregoing resolutions to the Chicago College, and to inform its members of the means of gratuitous conveyance from Chicago to this City.

Messrs. James T. Shinn, Chas. Bullock and Edward Parrish were appointed a committee to receive and extend aid to any who may come from Chicago, in accordance with the above resolutions.

NEW YORK COLLEGE OF PHARMACY.—A special meeting was held on the evening of November 21st, to hear the report of the Committee of Conference, appointed by the Board of Trustees, to confer with the Board for the licensing and the examination of druggists and prescription clerks. No particulars have been received.

CINCINNATI COLLEGE OF PHARMACY.—At a meeting held November 7th, the following Committees were appointed: On Apportionment of Scientific Duties, Dr. Greve and Messrs. Fratz and Kauffman; on Scientific Papers, Dr. Judge, Mr. Fennel and Mr. Jungt; on Candidates and Credentials, Messrs. Fennel, Taxis and Ayres.

Dr. W. B. Chapman was elected an honorary member.

The report of the Committee on a Charter was referred to the Board of Trustees; also the report of the Committee on College Course. The latter document was subsequently considered, somewhat modified and finally adopted.

The following Chairs were created and filled as specified: Pharmacy and Materia Medica, E. S. Wayne; Chemistry, J. F. Judge; Analytical and Organic Chemistry, Adolphus Fennel; Botany, F. H. Renz.

The first course will be opened about December 4th, and close in May next; one lecture a week will be delivered by each chair, except by the professor of analytical and organic chemistry; the lectures on this branch are regarded as supplementary to, and not necessarily a part of the regular course, and may be taken with or without the regular course, at such hours as the Professor of that Chair may designate.

Among the requirements for graduation are the following:

An apprenticeship of four years to the drug and apothecary business.

The passing of a written examination on questions pertaining to Pharmacy and its collateral sciences, such questions being submitted by the Professors. The percentage of correct answers to be required to insure graduation being sixty per cent. on each branch, or seventy-five per cent. of the whole number.

After passing a satisfactory examination the degree of graduate in Pharmacy will be conferred. After five years of honorable service in the profession the degree of Master of Pharmacy may be conferred, and after fifteen years, with an untarnished record for private character and professional capacity, the advanced degree of Doctor of Pharmacy may be conferred, the two latter degrees only being conferred by a unanimous vote of the Board of Trustees of the College.

The report states that the Committee has met with the most encouraging words, and regards the College already an assured success.

The report concludes as follows: In determining our choice of Professors we will say that we unanimously decided at first to choose our Teachers of our Science from among the practical members of our profession, feeling well assured that practical Pharmacists only could teach Pharmacy, and its collateral branches of Chemistry, Materia Medica and Botany, in their closest relations to the daily duties of buying, selling, manufacturing and dispensing of medicines.

ST. LOUIS COLLEGE OF PHARMACY.—From the sixth annual announcement of this College we learn that an apprenticeship of *two* years is regarded as sufficient to apply for examination, in addition to the attendance upon two courses of the lectures; or one course in the College and one course in some other respectable College of Pharmacy or Medicine. According to the letter of these

terms, a young man might attend in one winter a course of lectures in this College and in a Medical College in St. Louis and become eligible for graduation, though we do not suppose this to be the intention. In all other Colleges of Pharmacy, we believe, one course in a medical institution is accepted only, if there is no College of Pharmacy in the same locality, and if the same branches are taught there.

CHICAGO COLLEGE OF PHARMACY.—At a meeting of the Trustees, held Nov. 23, at the residence of the President, the following resolutions were unanimously adopted and ordered published:

Whereas, The druggists of San Francisco have, in addition to liberal subscriptions to the general fund for the relief of the sufferers in Chicago, also contributed in a most generous spirit to a special fund for the relief of suffering members of this college, and such act being a notable exhibition of the brotherly consideration entertained for members of the same profession in a distant city, it is especially worthy of our recognition and gratitude; it is therefore,

Resolved, That the hearty thanks of this college be returned to the noble members of our profession in San Francisco, for their generous and timely aid in relieving the distress caused by the terrible fire of Oct. 9, for which act of brotherly sympathy and beneficence we will ever hold their names in grateful remembrance.

Resolved, That the officers of this college be directed to return suitable acknowledgement for the relief extended, and to request a list of the names of the donors, for the cabinet of this college.

Whereas, It is known to us that the druggists of other cities have, in a praiseworthy and most liberal manner, contributed a special fund for the relief of the Chicago druggists who were rendered homeless and destitute by the late disastrous fire, and by their timely aid have relieved the sufferings of many worthy persons, recognizing in this act a beautiful illustration of the noble virtue and charity conferred in a spirit of true Christian philanthropy, it is hereby

Resolved, That this college, in grateful appreciation of the sympathy and generous liberality of the druggists of sister cities and colleges for the relief of their distressed brethren, do hereby tender to each of their benefactors hearty thanks, with the hope that no similar calamity may ever assail them.

ONTARIO COLLEGE OF PHARMACY.—The following gentlemen have been elected as the Council of this College, in accordance with Section IX of the Ontario Pharmacy Act: Wm. Saunders, Benj. Lyman, E. B. Shuttleworth, Hugh Miller, J. C. Holden, H. J. Rose, J. W. Bickle, E. H. Parker, Wm. Elliott, J. Roberts, Geo. Hodgetts, F. Brendon and W. H. Dunspaugh.

THE SOUTH GERMAN APOTHECARIES SOCIETY held its annual meeting at the city of Worms, on the 6th and 7th of September, Mr. Wolfrum, of Augsburg, in the Chair; seventy members from South Germany and fifteen from North Germany were present. The consolidation with the North German branch into one Society was agreed upon, slight modifications in the constitution of the latter being recommended. The South German portion of the committee for elaborating a German pharmacopœia, has been divided into eight sections, so as to elicit eight different reports from that part of the country to the general committee. The next meeting will be held in conjunction with the North German Society for the purpose of effecting the consolidation.

THE NORTH GERMAN APOTHECARIES SOCIETY held its annual meeting at Dresden, on the 14th and 15th of September, Mr. Danckwortt, of Magdeburg, presiding. The deliberations were mainly confined to questions relating to Society affairs. The union with the South German branch was resolved, and the alterations of the constitution, as proposed by that branch, were adopted. It was recommended that the *Archiv* and *Neues Jahrbuch für Pharmacie* be merged into one journal. The following prize query for apprentices for the year 1871—72 was adopted: "Qualitative and quantitative examination of so-called pure sulphuric and muriatic acids, obtained from three different manufactories, for their impurities, particularly arsenic, nitrogen compounds and sulphurous acid, and the determination of their specific gravities and amounts of anhydrous acids."

The members and guests present during the meeting numbered 270. The next meeting will be held in Frankfort-on-the-Main, together with the South German branch. The cable message sent by the American Pharmaceutical Association did not arrive until after the final adjournment.

THE PHARMACOPŒIA COMMITTEE of Germany consists of five apothecaries, three physicians, two professors of pharmacy and two professors of chemistry. Among the members we notice the following names, more or less known on this side of the Atlantic: Professor Falk, of Marburg, Dr. Carl Schacht, of Berlin, Professor Buchner, of Munich, Mr. Wolfrum, of Augsburg, and Professor Fehling, of Tübingen. The following gentlemen have been appointed as consulting experts: Dr. Liebreich, of Berlin, Dr. Schwanert, Professor of Chemistry at Greifswald, Messrs. Kobligk, of Berlin and Lehmann, of Rendsburg.

AUSTRIAN APOTHECARIES SOCIETY.—The annual meeting of this body took place at Linz, September 17, 18 and 19. The reports and discussions related chiefly to society affairs, the cabinet, library, laboratory, &c., and to the condition of pharmacy in Austria. The entire membership is 559, of which number 475 are active members.

THE COLLEGIO DE FARMACEUTICOS, in Madrid, Spain, celebrated on the 21st of August last, the 134th anniversary of its foundation. A pharmaceutical exhibition is contemplated in that city during the coming year.

THE ASOCIACION MEDICO-FARMACEUTICA ESPANOLA has been formed on the 30th of August in Madrid. The Association numbers 1,061 members, residing in 36 provinces.

Minutes of the Pharmaceutical Meetings.

The second meeting of the Session 1871—2 was held on Tuesday afternoon, Nov. 21, 1871, Dr. Wilson H. Pile presiding.

The minutes of the previous meeting were read and adopted.

Mr. Charles Heinitsh, of Lancaster, Pa., presented a sample of capsicum, bearing a very small fruit, finely flavored. It was raised from seeds brought from Mexico during the war. The species seems to be unknown.

An original package, in which otto of rose was imported, was presented for the cabinet by Tilge & Bro.

Prof. Maisch exhibited specimens of cundurango, received, since the last pharmaceutical meeting, from various parties. The flowering branch and the pod of that variety of cundurango called "mata perro," sent for exhibition by McKesson & Robbins, of New York, belong to a plant of the natural order *Asclepiadaceæ*, though not to the genus *Asclepias*. Authentic specimens of mata-perro, tumbo grande and tumbo chico, received from the same house, were likewise exhibited, and compared with a specimen coming from the State Department at Washington (see page 525, Nov. number). The latter is a piece from a young branch, and probably identical with the tumbo grande, which, however, consists, in the specimens exhibited, of older bark only. The experiments of physicians with the cundurango first received in this country have not sustained its reputation. It remains to be seen whether mata perro and tumbo chico possess valuable medicinal properties; for the former, alterative properties and beneficial effects in syphilitic complaints are claimed. Various samples of cundurango met with in commerce consist of mata-perro and tumbo chico, the latter sometimes mixed with small and variable quantities of tumbo grande. The appearance of the decoctions of the three varieties, and their behavior to ammonia and nitric acid, afford no reliable means of distinguishing them, as had been stated in a circular lately received.

Prof. Maisch also exhibited South American and East Indian clove or culilawan bark. The former comes from *Dicypellium caryophyllatum*, Nees, and occurs in large quills, composed of several layers of the thin liber; the latter is the produce of *Cinnamomum Culilawan*, Nees, and comes in flat pieces, the taste resembling a mixture of cloves, cinnamon and sassafras.

Prof. Farrish presented specimens of "Boldo" leaves and branches, brought by Dr. E. W. Burton from Concepcion, in Southern Chili, where it has a reputation among physicians and people as a specific remedy in chronic liver complaints. The tree was supposed by Dr. Burton to be a species of *Drimys*, probably *Drimys Chilensis*, but the leaves are opposite, while those of all the *Magnoliaceæ* are alternate. The tree is an evergreen, growing 20 feet high, and is very abundant. The twigs or small branches are covered with a thin bark, perhaps a line in thickness, firmly adherent to the tough and fibrous wood. The wood is slightly, the bark very, aromatic; it is wrinkled longitudinally, covered with vesicles, light brown or fawn color, much branched, with opposite very numerous branchlets; the terminal branches are very bushy. The leaves—which are described as of a dark though lively green color on the upper surface, lighter on the under when fresh—are in this dry specimen reddish brown, mottled with whitish spots, coriaceous, deeply marked with midrib and alternate, sometimes opposite veins, which are anastomosed and looped near the edges. They are conspicuously covered with vesicles and very aromatic, opposite, petiolate, entire, ovate, with a small stipule at the base. The flavor is grateful, and recalls that of chenopodium. The medicinal virtues of this tree were dis-

covered by its marvellous effect on a flock of sheep inclosed in a corral formed of this tree. The sheep were much afflicted with a disease attributed to the liver, and by browsing on the leaves of the Boldo, constituting their inclosure, were restored to health. Large quantities of this drug are said to be exported from Chili to Peru, where it is highly valued.

Prof. Parrish exhibited specimens of bichloride methylene, imported by him. It bears the label of J. Robbins & Co., of London. The odor is fragrant, similar to that of chloroform. It is dense and limpid, inflammable with difficulty, burning with a smoky flame. It has been used successfully as an anæsthetic by Dr. Levis, Surgeon in the Pennsylvania Hospital. The only objections found to it is its high price as compared with ether and chloroform, although its dose by inhalation is only from one to two fluid-drachms.

Prof. Maisch read a paper on chestnut leaves and its fluid extract (see page 529).

Prof. Parrish exhibited specimens of "Perkins & Hyatt's Celluloid Base," patented for the use of dentists in making artificial dentures. This is composed of inspissated collodion combined with a certain proportion of camphor. At the temperature of 300° F. it softens so as to be perfectly adapted to the plaster cast of the mouth, and when cold is firm and somewhat elastic, much resembling the hard rubber plates so much in use. He also showed the convenient screw-press, flask and oil-bath, with thermometer attached, in which the base is moulded to fit the plaster cast. Although adapted to withstand any test experienced in actual use in the mouth, this substance is soluble in ether and alcohol, and at a temperature of about 330° F. is decomposed and volatilized. Touched by an ignited match, it was shown to burn rapidly, with much smoke.

Dr. Pile exhibited crystallized bromide of morphia, prepared by him by double decomposition between equivalent quantities of bromide of barium and sulphate of morphia. The crystals, which are very beautiful, acicular, and disposed in stellate groups, are very difficult to dry without losing their whiteness. He stated that this salt is sometimes prescribed as a remedy in nervous affections.

Dr. Bridges remarked that bromide of potassium has been found useful in correcting the effects of opium, and this combination may have been suggested by a knowledge of that fact.

Prof. Parrish exhibited so-called "divided medicines," patented by Fred. Kraus, of Cincinnati. They consist of sheets of gelatine containing, either in solution or suspended equally throughout, such medicines as calomel, opium, subnitrate of bismuth, sulphate of quinia, sulphate of morphia, and arsenious acid. Being of uniform thickness and definite outline, they are marked while yet soft with lines dividing them into 12 equal squares, each of which, by being cut out, will furnish a definite dose. He stated an objection to this form of administering soluble medicines, that the full impression is made upon the palate during their solution in the mouth, which must necessarily be protracted; the French wafer, on the contrary, by enveloping a nauseous medicine, so as to prevent its contact with the organs of taste, completely disguise it. The effect

of moisture upon these gelatine sheets would seem to render them more perishable than many other pharmaceutival forms.

In the discussion which followed upon the eligibility of these medicines, Prof. Maisch spoke of their having been used in Germany and other parts of Europe for several years, and were first suggested and introduced by Prof. Almén, of Upsala, Sweden. The elegant atropine and calabar discs of Squire, and those containing a variety of concentrated remedies made by Savory & Moore, are similar, though of greatly superior workmanship, and are especially adapted to be applied in the eye and for similar applications.

Prof. Maisch called attention to the recent observations in regard to the solvent action of citrate of ammonia, potassa, soda and lithia upon various salts of iron and bismuth insoluble in water, and exhibited scales resembling the officinal pyrophosphate of iron, but composed of phosphate of sesquioxide of iron and citrate of potassa. This salt was made by M. J. Creuse, of Brooklyn. It is surprising how long a time it took to make this discovery, while it has been well known for a number of years that soluble salts of iron, mixed with sufficient citric or tartaric acid, are not precipitated by potassa, which has generally been attributed to the formation of a double salt. The discovery by Robiquet, in 1856, of the solubility of pyrophosphate of iron, and the observation by several, in 1859, of the solubility of the ordinary phosphate of iron in citrate of ammonia, failed to provoke similar experiments with citrate of potassa and of soda, until the present time, by Mr. Creuse.

Then adjourned.

C. PARRISH, Registrar.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Circular No. 3, War Department. Surgeon General's Office, Washington, D. C., August 17, 1871. A Report of Surgical Cases treated in the Army of the United States from 1865 to 1871. Washington: Government Printing Office, 1871. 4to. 296 pages.

The report which has been published for the information and instruction of the medical officers of the army, has been compiled by Assistant Surgeon George A. Otis, from the returns and special reports of medical officers made during the last five years. The observations are classified in a convenient shape for reference, and wherever it appeared desirable, the text is illustrated with wood cuts and lithographs. The total number of wounds, accidents and injuries reported from July 1st, 1865, to December 31st, 1870, was 61,105; of which number 1,037 cases have been selected for the report in question, which, besides the strictly professional accounts, contains also much information of general interest. We are informed, for instance, that in Texas, the popular and domestic remedy for the sting of the scorpion is a mixture of bruised garlic and common salt. In the same locality (Point Isabel) a large bull dog was bitten on the nose by a rattlesnake. A native remedy, probably of no value, was used—the dog's nose at and in the vicinity of the wound being severely pricked with sharp points of the Spanish bayonet (yucca). A ludicrous exaggeration of the animal's features ensued from the swelling of the tissues about the face and head; he seemed surly and ill for several days, but eventually recovered.

The report exhibits the great amount of care and judgment bestowed upon it, and the "Circular" well sustains the reputation, which the Surgeon General's Office has acquired through the publication of similar documents in past years.

A Contribution to the Treatment of the Versions and Flexions of the Unimpregnated Uterus. By Ephraim Cutter, A. M., M. D. Reprinted from the Journal of the Gynecological Society. Boston: James Campbell, 1871. 8vo. 44 pages. 50 cents.

The pamphlet enters fully into the consideration of the frequently occurring female complaints mentioned in the title, and imparts much sound advice, based to a considerable extent upon the author's professional experience. The subject is illustrated with twenty cuts, showing the various positions of the uterus and the instruments requisite in effecting a cure. From the concluding remarks of the author, we extract the following:

"There is no doubt in my own mind that the present mode of suspending the dress of females from the waist is a prominent exciting cause of uterine versions and flexions. This impression is so strong that it is impossible for the writer to close this article without re-alluding to this subject. First, there is the corset surrounding the waist. Even if worn loosely, it none the less communicates the superincumbent weight of garments on to the abdominal region, and crowds the viscera down to the lower part of the cavity in the pelvis. In this state of things, let the vagina be weakened by inflammation, what would be more natural than for the uterus, unduly weighed down, to tip over or bend, thus dilating still more the toneless vagina, and increasing the difficulty? The natural points for suspending the garments, in men and women, are the shoulders. The bones of this region with their investments are admirably suited for this purpose. Weight applied here is supported by the whole thoracic and pelvic skeleton. There is no crowding of the diaphragm upwards, or abdominal viscera downwards, as in the suspension from the waist. How disastrous this waist suspension is in men! Take the sailors, they are notoriously subject to hernia. No doubt their unusual efforts in pulling ropes combine to aid this result, but the tight waist belt must make it more sure.

"When Paris fell, it was hoped that with it would go the fashions, and that the common sense of mankind would cause them to look for modes of dress from medical artists, who understand the needs and requirements of the body, from a physiological as well as æsthetic point of view. Health and comfort should be combined with beauty. The person who will invent a means of suspending the garments of women from the shoulders, which shall combine ease, lightness and mechanical adaptation, will deserve and receive the reward of a benefactor."

Diseases of the Skin; the recent advances in their pathology and treatment. By B. Joy Jeffries, A.M., M.D. Reprinted from the American Journal of Syphilography and Dermatology. Boston: Alexander Moore, 1871. 8vo. 79 pages. Price, bound, \$1.00.

This essay was written in answer to the Boylsten Medical Prize Question for the past year, and was adjudged the prize by the Medical Committee appointed by the President and fellows of Harvard University. The subject

which is brought down to January of this year, is treated with clearness and precision. Paper, typography and binding are very creditable to the publishers.

Die organische Chemie und die Heilmittellehre. Rede gehalten von Aug. Wilh. Hofmann. Berlin: August Hirschwald, 1871. 8vo. 26 pages.

Organic chemistry and materia medica.

This is a lecture delivered at Berlin, August 2d, by the distinguished chemist A. W. Hofmann, at the celebration of the anniversary of the Medico-Chirurgical Frederick William Institute, and of the Medico-Chirurgical Academy for the Military, and as might have been expected, treats of the important relation of the two branches of science with the same skill which characterizes all scientific researches of its author. Hinting at the influence chemistry has upon most scientific and industrial pursuits, the author next gives an outline of the domain of organic chemistry, and passes to its influence upon materia medica. The analytical labors are first considered, revealing those proximate principles to which the crude drugs owe their medicinal properties, wholly or in part. But organic chemistry soon enters upon a new field of investigation, studying the influence of the various chemical agents upon the organic compounds. The derivatives of the alcohols, and of wood and coal tar, the generation of various compounds by different forms of fermentation, the results of the effects of nitric acid, chlorine, &c., the disappearance of the poisonous and emetic properties of arsenic and antimony in certain organic combinations, the synthetical preparation of some remedial agents, the complete changes of the physiological properties of alkaloids by methylation are severally reviewed, and the conclusion deduced, that, in the future, physiological effects will be obtained not merely by the mechanical mixture in the vial, but through the chemical metamorphosis of the remedial molecule.

Constitution and By-Laws of the St. Louis College of Pharmacy. Incorporated under the law of the State of Missouri, Oct. 1st, 1866. St. Louis: 1871.

We acknowledge the reception of this pamphlet.

Burrough Bros.' Formulary and Descriptive Catalogue of their Fluid and Solid Extracts, with a Complete Botanical Index. Prepared by Burrough Bros., Baltimore. Philadelphia: Claxton, Remsen & Haffelfinger, 1871. 12 mo. 180 p. Price \$1 00.

This handsomely gotten up volume contains neither descriptions of, nor formulas for, fluid and solid extracts; its aim and character are precisely the same as those of its forerunners, published by Tilden & Co., Henry Thayer & Co. and Hance, Griffith & Co., during the last eight years. We are opposed to the indiscriminate use of so-called concentrated preparations for making tinctures, infusions, syrups and the like in opposition to the pharmacopœia; we are even opposed to the purchase, by the apothecary, of any and all such preparations (cases of emergency excepted), which should be made by him. Aside from the evident care bestowed upon the compilation of this volume, we cannot, therefore, find anything in it that would recommend it to the favorable consideration of the conscientious pharmacist.

I N D E X

TO VOL. XLIII (VOL. I, FOURTH SERIES) OF THE AMERICAN JOURNAL
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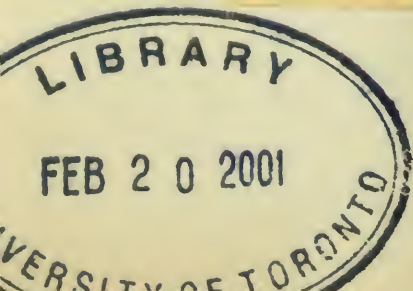
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